
Kundendienst-Handbuch

Service Manual

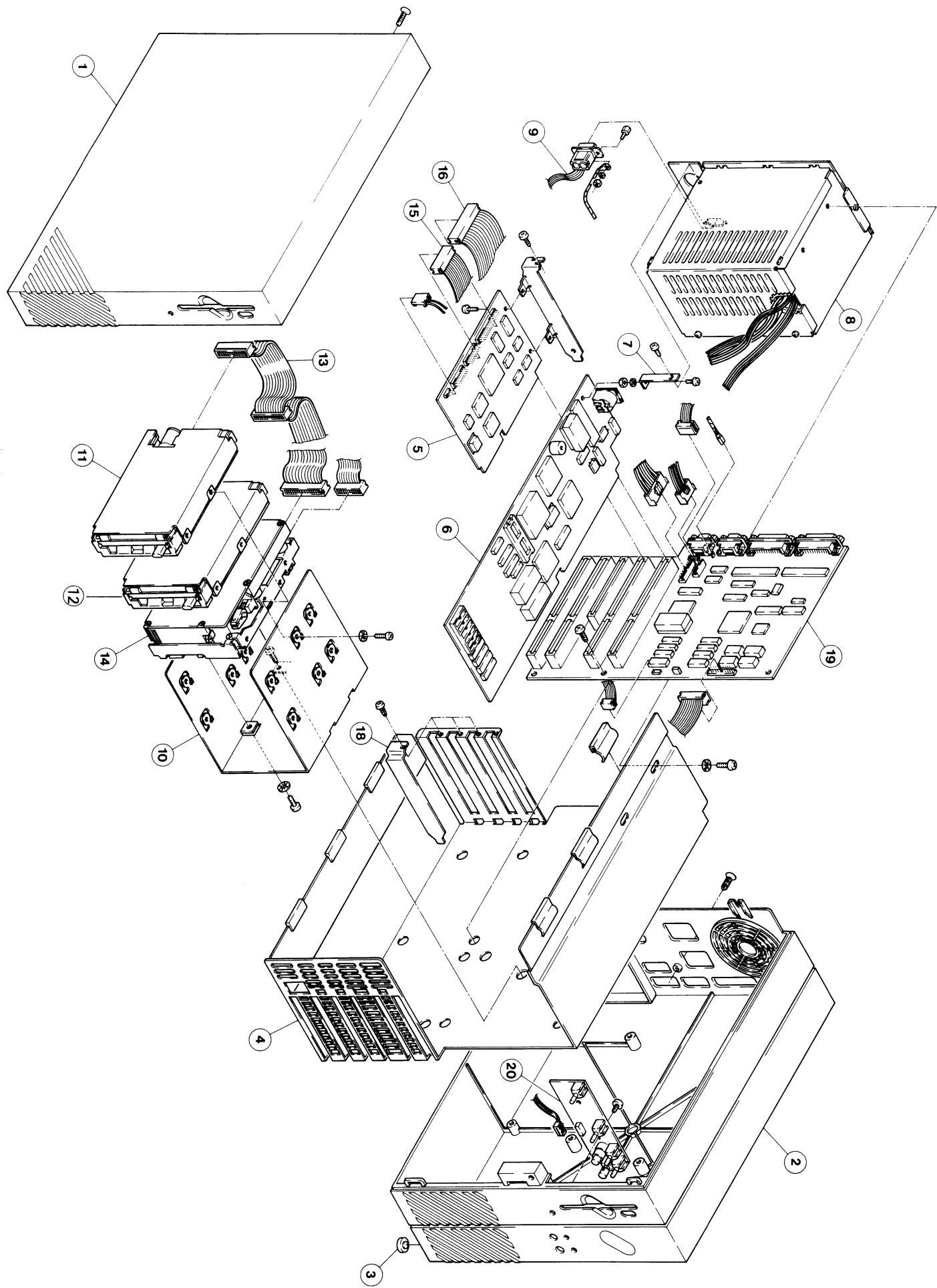
PERSONAL COMPUTER
Tower AT 201/202/220

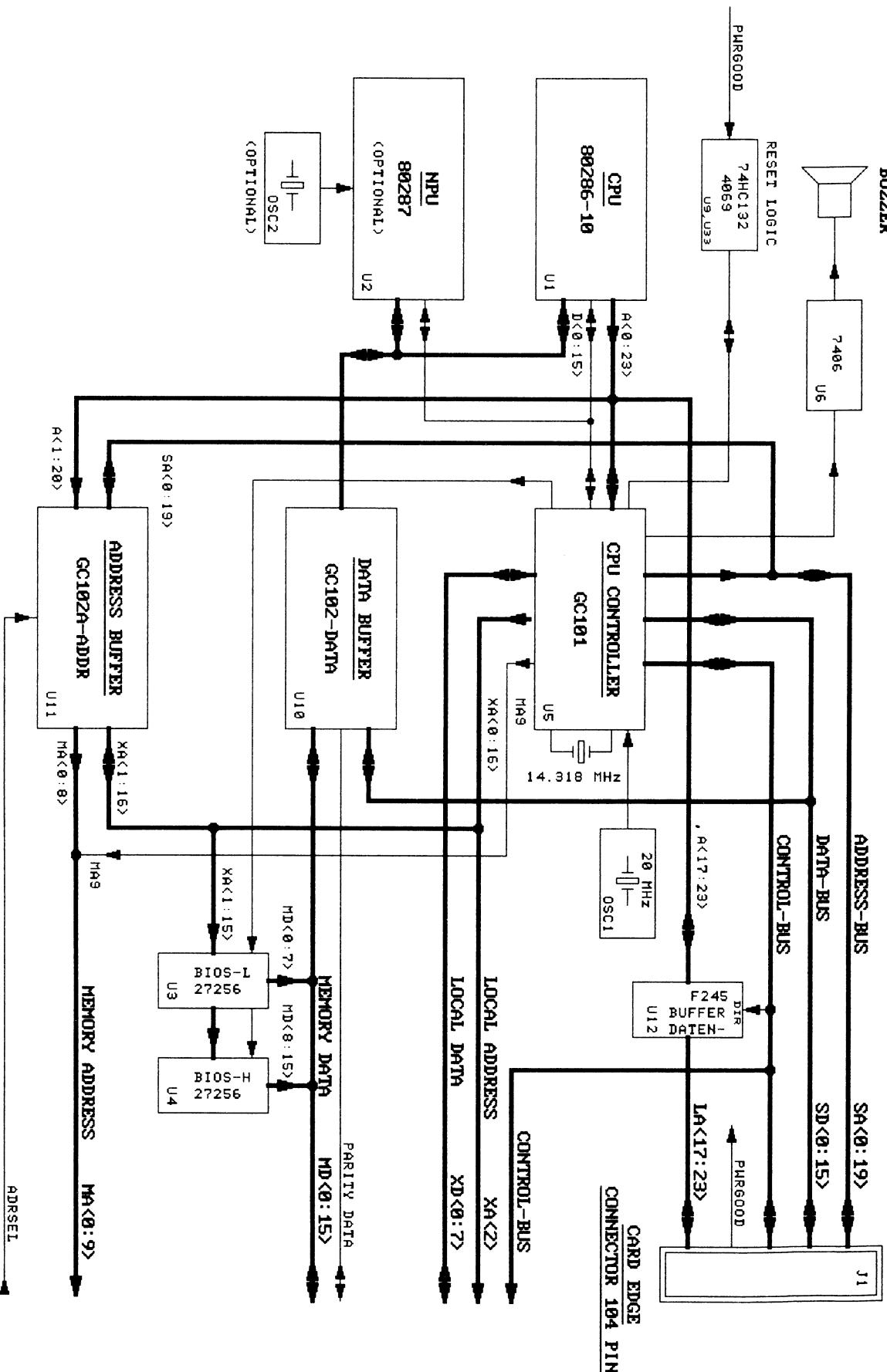


Ersatzteilliste für Tower AT 201/202/220
 Parts List for Tower AT 201/202/220

Bestell-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe
50 467 00	FK System Tower	Box system tower		C 3
50 466 00	Sty-Verp. System Tower	Polyfoam system tower		C 3
50 495 00	FK Tastatur Tower	Box keyboard tower		C 2
50 496 00	Sty-Verp. Tastatur Tower	Polyfoam keyboard tower		C 2
50 481 00	Tastatur (D)	Keyboard (D)		F 6
50 482 00	Tastatur (F)	Keyboard (F)		F 6
50 202 00	Tastatur (DK)	Keyboard (DK)		F 6
50 203 00	Tastatur (I)	Keyboard (I)		F 6
50 204 00	Tastatur (N)	Keyboard (N)		F 6
50 485 00	Tastatur (S/SF)	Keyboard (S/SF)		F 6
50 206 00	Tastatur (P)	Keyboard (P)		F 6
50 214 00	Tastatur (GR)	Keyboard (GR)		F 6
50 484 00	Tastatur (GB)	Keyboard (GB)		F 6
50 483 00	Tastatur (E)	Keyboard (E)		F 6
50 486 00	Tastatur (CH)	Keyboard (CH)		F 6
50 097 00	Netzkabel (D)	Cord AC (D)		C 0
50 562 00	Netzkabel (GB)	Cord AC (GB)		C 0
50 617 00	Netzkabel (CH)	Cord AC (CH)		C 0
50 225 00	Gehäuse Oberteil Tower	Cabinet top	1	C 3
50 226 00	Gehäuse Unterteil Tower	Cabinet bottom	2	C 9
50 493 00	Gehäusefuß	Leg	3	A 5
50 172 00	Blechchassis Tower	Chassis metal	4	D 4
50 450 00	HD Controller 220 MFM	HD Controller 220 MFM	5	G 1
50 229 00	Platine Best. (D) Tower AT CPU	PCB (D) tower AT CPU	6	*
50 293 00	Haltewinkel CPU Leiterplatte	Angle CPU	7	A 9
50 215 00	Netzteil Tower 90W	Power supply tower 90W	8	G 8
50 448 00	Kabelbaum 9pol.	Cable 9-pol.	9	B 8
50 171 00	Floppyhalter	Bracket floppy	10	B 8
50 472 00	Floppy Laufwerk	Floppy disk drive	11, 12	G 7
50 221 00	Kabelbaum Floppy 26pol.	Cable floppy 26-pol.	13	B 7
50 473 00	Hard Disk Laufwerk	Hard disc drive	14	J 9
50 220 00	Kabelbaum 20pol.	Cable 20-pol.	15	B 9
50 223 00	Kabelbaum 34pol.	Cable 34-pol.	16	C 5
50 224 00	Blindblende	Plate blind	17	A 9
50 020 00	Blindblech	Plate blind	18	B 9
50 228 00	Platine Best. (D) Tower EGA I/O	PCB (D) tower EGA I/O	19	J 1

Exploded view

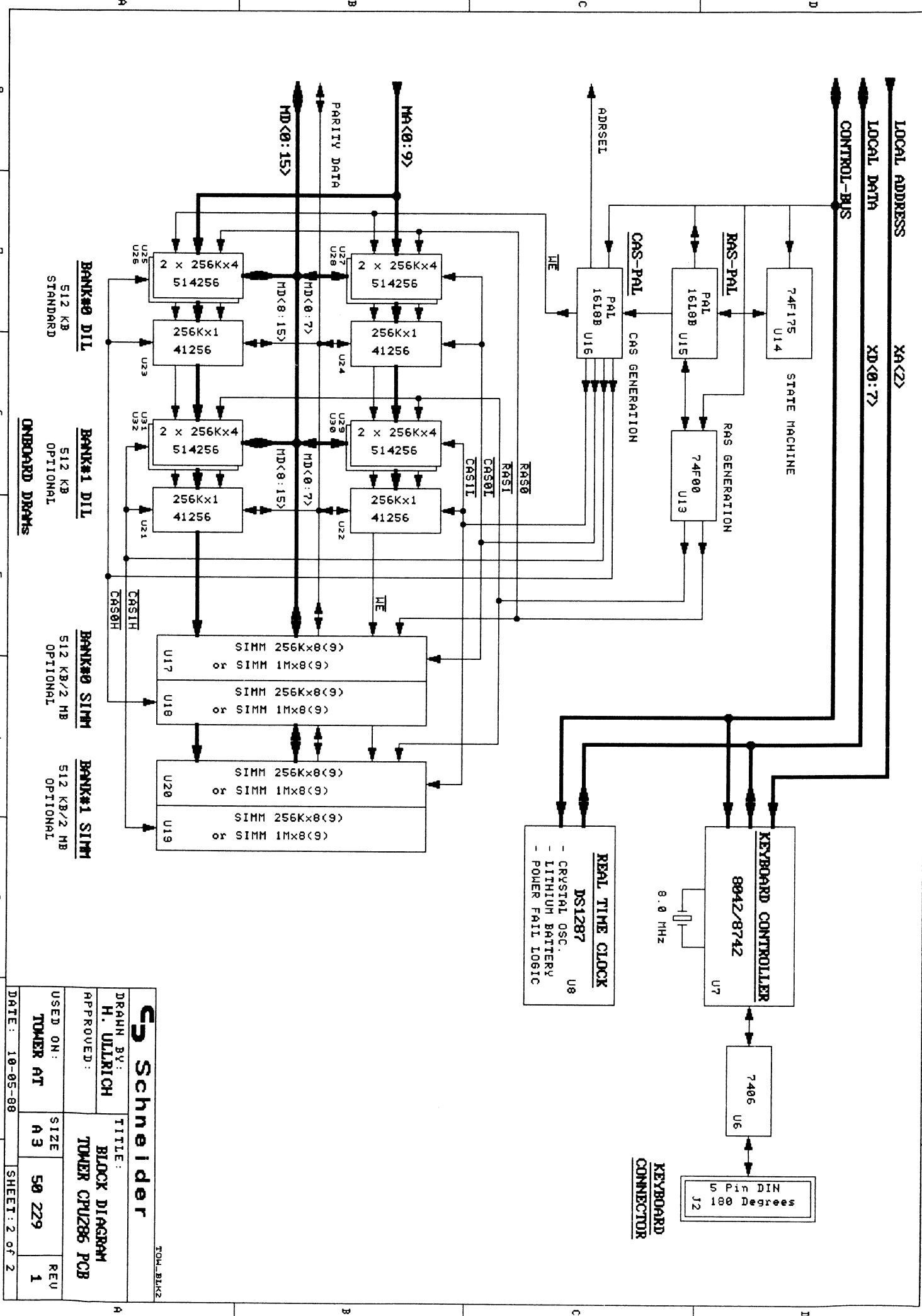




Schneider

TOH-BLK1

DRAWN BY:	TITLE:
H. ULLRICH	BLOCK DIAGRAM
APPROVED:	TOWER CPU286 PCB
USED ON:	SIZE REV
TOWER AT	A3 50 229 1
DATE:	10-05-88 SHEET: 1 of 2



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REVISIONS

LTR	DESCRIPTION	DATE	APPROVED
1	ADVANCED ENGINEERING RELEASE	05-13-88	SCHLAGE
2		05-18-88	ASSMANN
3		06-01-88	SCHLAGE
4	First Layout	06-22-88	SCHLAGE
5	Layout REU 2	06-26-88	ASSMANN
6	Layout REU 2 CORRECTIONS	06-22-88	ASSMANN
7	PCB REU 2A FIX OF BUS 'MASTER'	06-31-88	ASSMANN
8	PCB REU 4. LAYOUT: ADDITIONAL RESET LOGIC ELIMINATED	10-27-88	ULLRICH

DRAWING FILES: CONTENTS:

TOM_81.DWG THIS SHEET
 TOM_82.DWG CPU SECTION
 TOM_83.DWG BIOS EPROMS
 TOM_84.DWG GC101
 TOM_85.DWG KEYBOARD / CLOCKS
 TOM_86.DWG REAL TIME CLOCK
 TOM_87.DWG ADDRESS / DATA BUFFERS
 TOM_88.DWG TIMING FOR MEMORY
 TOM_89.DWG MEMORY ON SIL- MODULE
 TOM_810.DWG CONNECTORS
 TOM_811.DWG BLOCK CAPS
 TOM_812.DWG

C Schneider

TOM_81

DRAWN BY: H. ULLRICH	TITLE: SCHEMATICS
APPROVED:	Tower-CPU286

USED ON:	SIZE	REU
Tower-AT	A3	50 229

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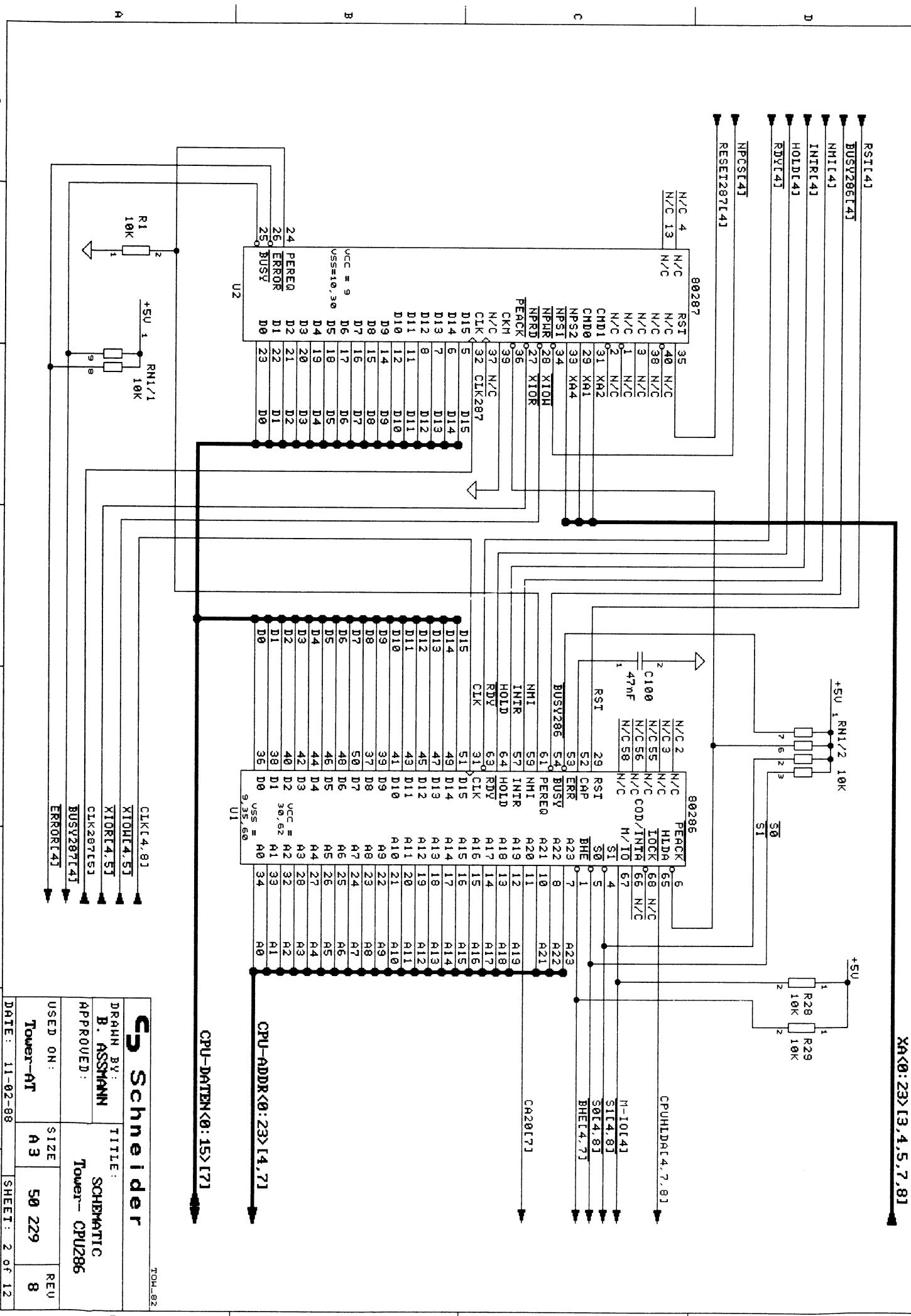
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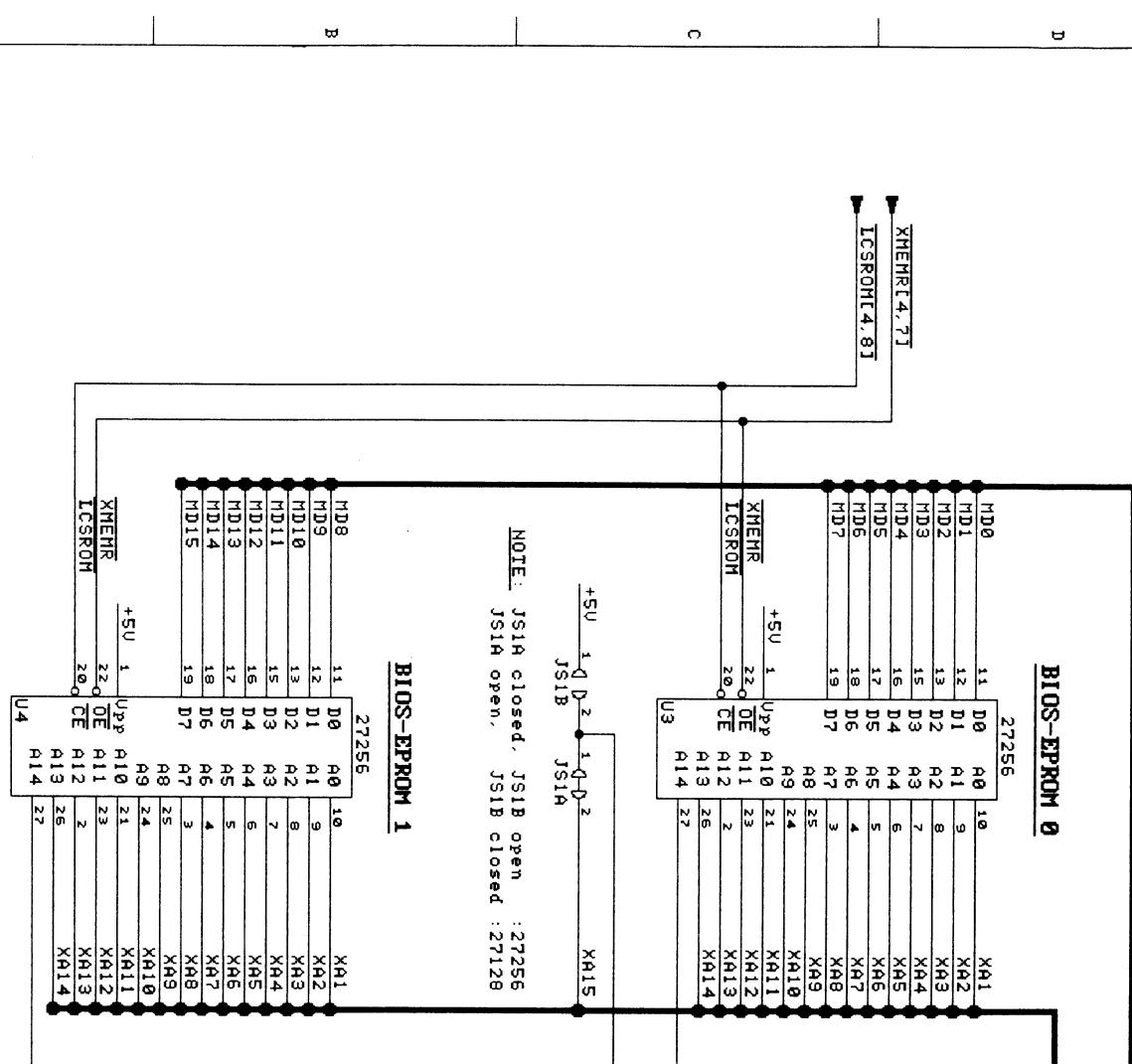
A

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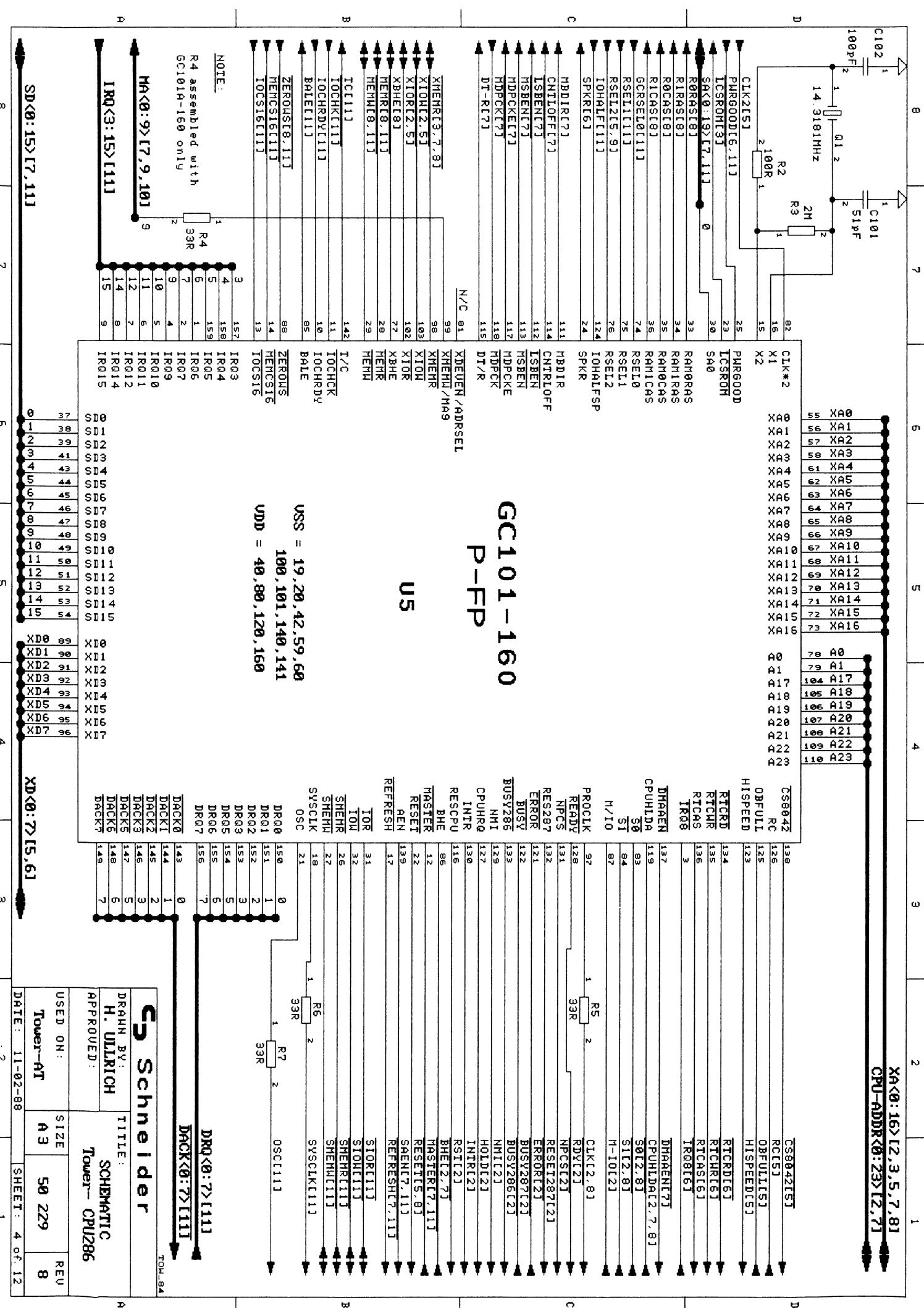
MD<0:15>[7,9,10]

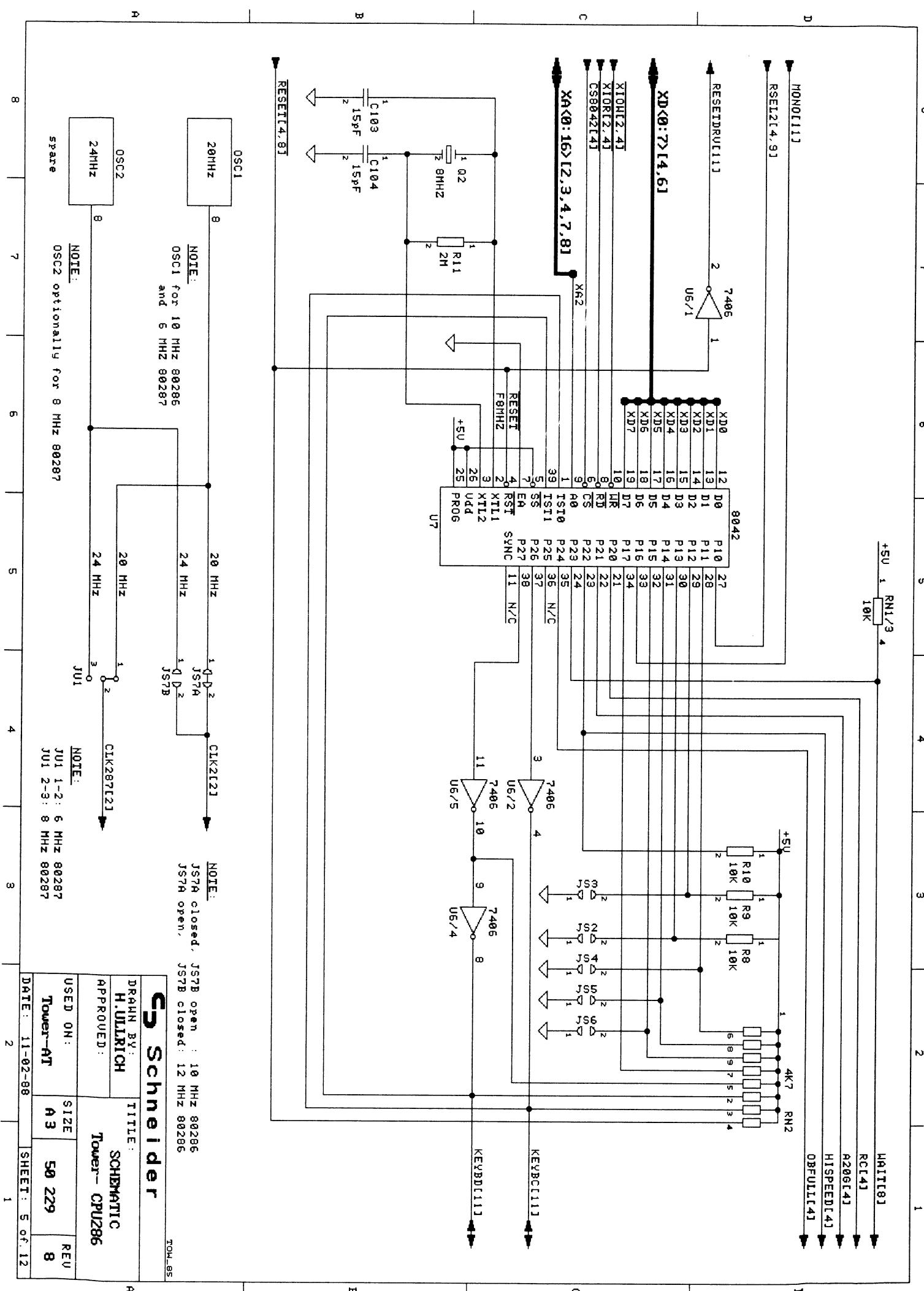
BIOS-EPROM 1

NOTE: JSIA closed : JSIB open : 27256
JSIA open : JSIB closed : 27128

S Schneider	
DRAWN BY: B.ASSMANN	TITLE: SCHEMATIC
APPROVED:	Tower- CPU2B6

USED ON:
TOWER-AT
DATE: 11-02-88



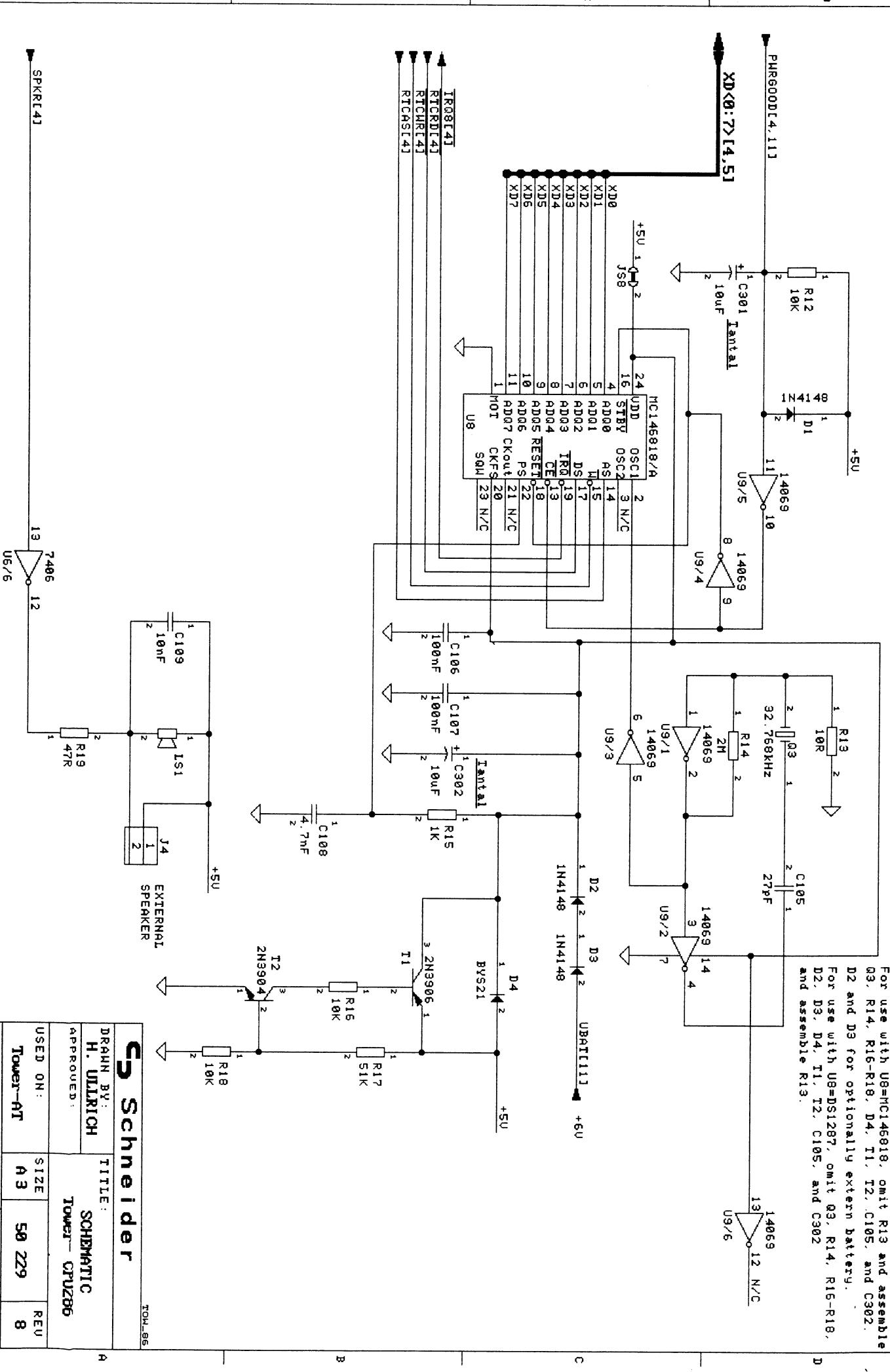


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NOTE:
 For use with U8=MC146818, omit R13 and assemble
 D3, R14, R16-R18, D4, T1, T2, C105, and C302.
 D2 and D3 for optionally extern battery.

For use with U8=DS1287, omit Q3, R14, R16-R18,
 D2, D4, T1, T2, C105, and C302.
 and assemble R13.



Schneider

TOM-86

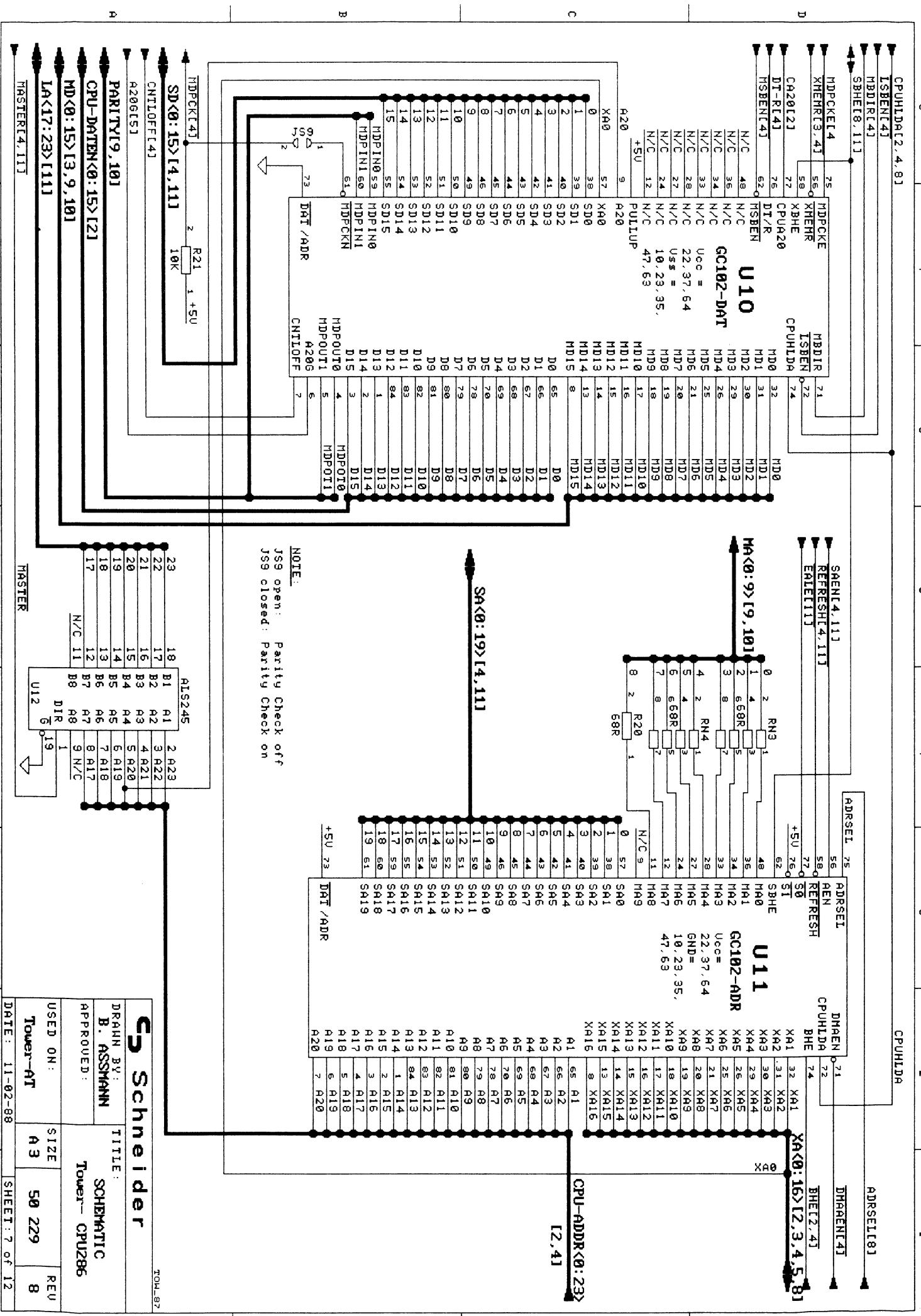
SCHEMATIC

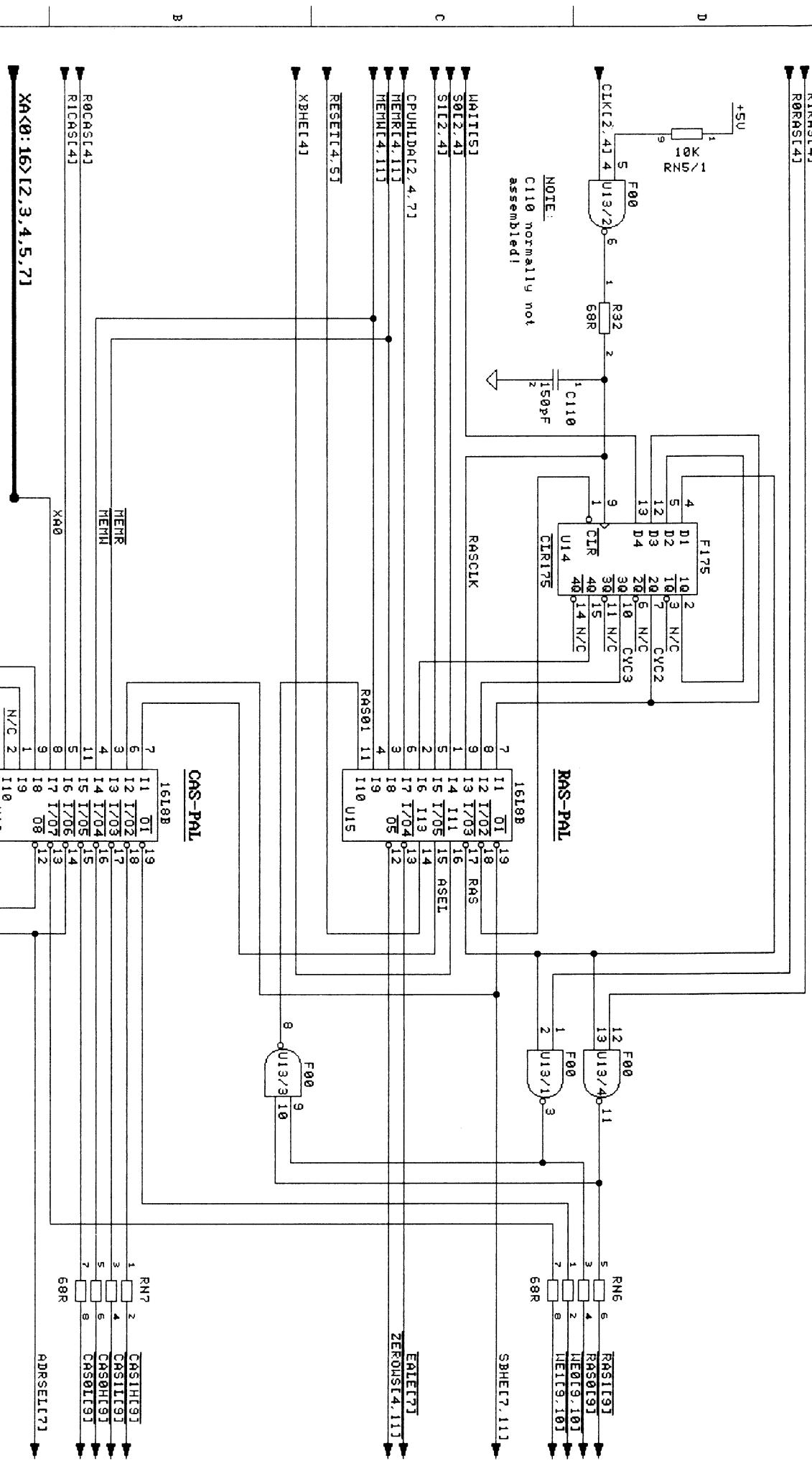
TOWER-CRUZ6

DRAWN BY:	TITLE:
H. ULLRICH	SCHEMATIC
APPROVED:	TOWER-CRUZ6
USED ON:	SIZE A 3 50 229 REV Tower-AT 8

A

DATE: 11-92-88 SHEET: 6 of 12





C. Schneider

Schneider

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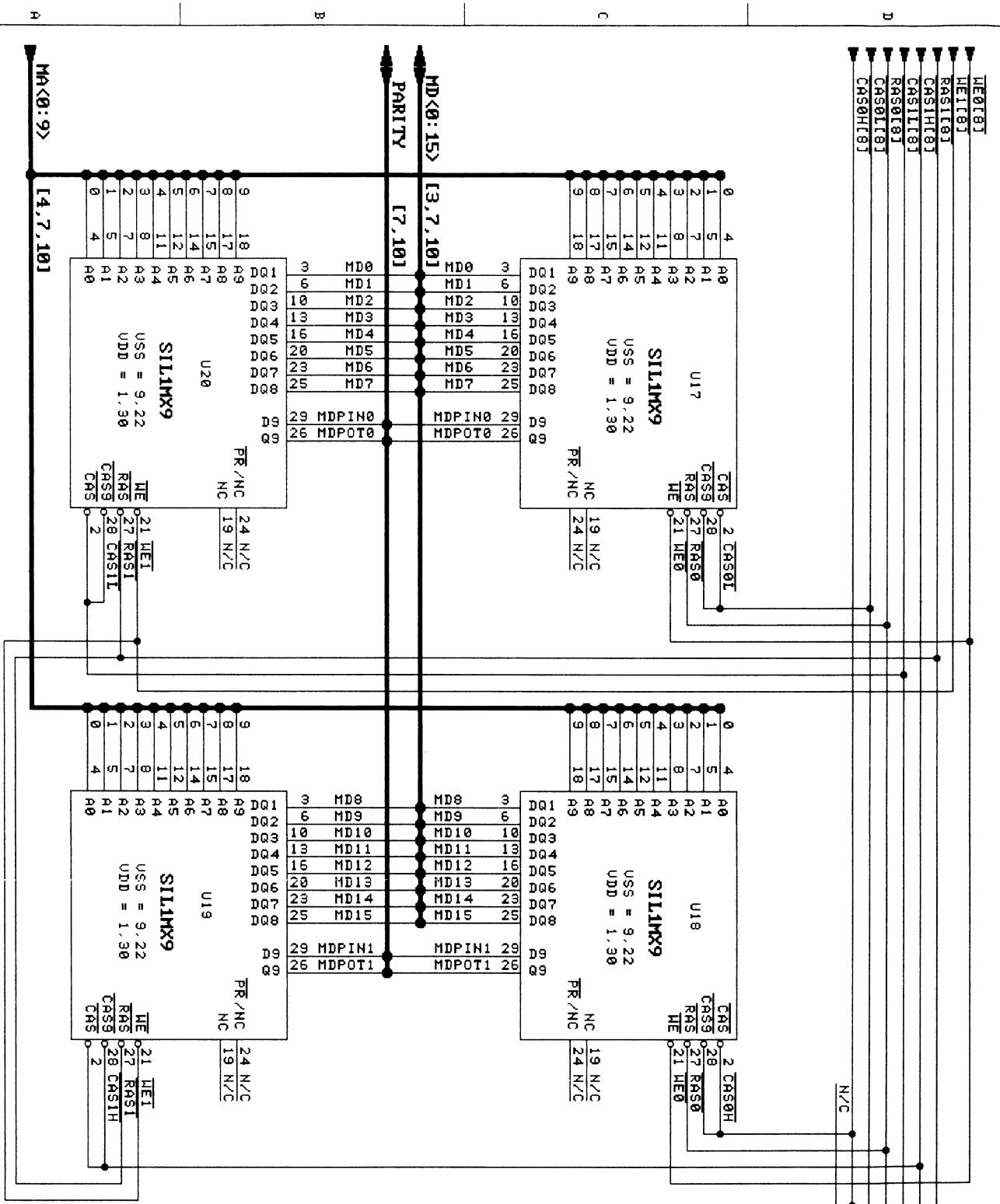
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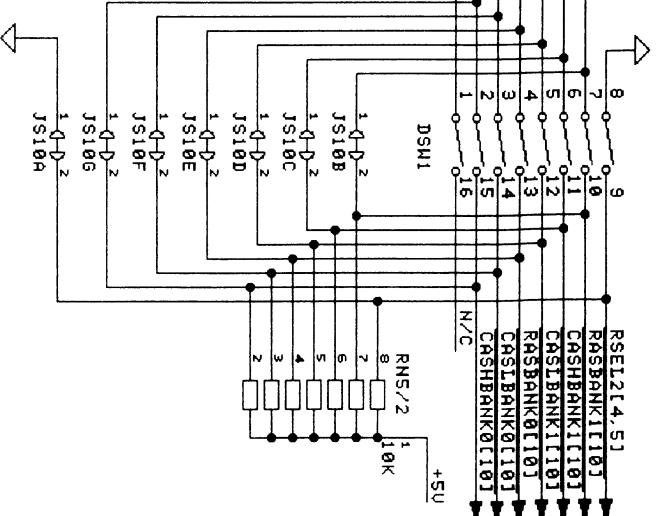
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NOTE:

JS10B-JS10D / DSM1 7-10, 6-11, 5-12 disconnects DRAM's U21-U22 and U29-U32
JS10E-JS10G / DSM1 4-13, 3-14, 2-15 disconnects DRAM's U23-U24 and U25-U28
J10A / DSM1 8-9 open: DRAM's 1M *1 J10A / DSM1 8-9 closed: DRAM's 256K *4



S Schneider

DRAWN BY: B. ASSMANN TITLE: SCHEMATIC
APPROVED: Tower-AT Tower- CPU286

USED ON:	SIZE	REV
Tower-AT	A 3 50 229	8

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MA<0:9>[7,91] MA<0:9>[8,91]
 WE0[8,91] WE0[8,91]

WE1[8,91]

514256 3 WE0 3 WE0 3 WE0 3 WE0

U28 16 DE 16 DE 16 DE 16 DE

NC

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14 7

A7

13 6

A6

12 5

A5

11 4

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10 3

A3

9 2

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8 1

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6 0

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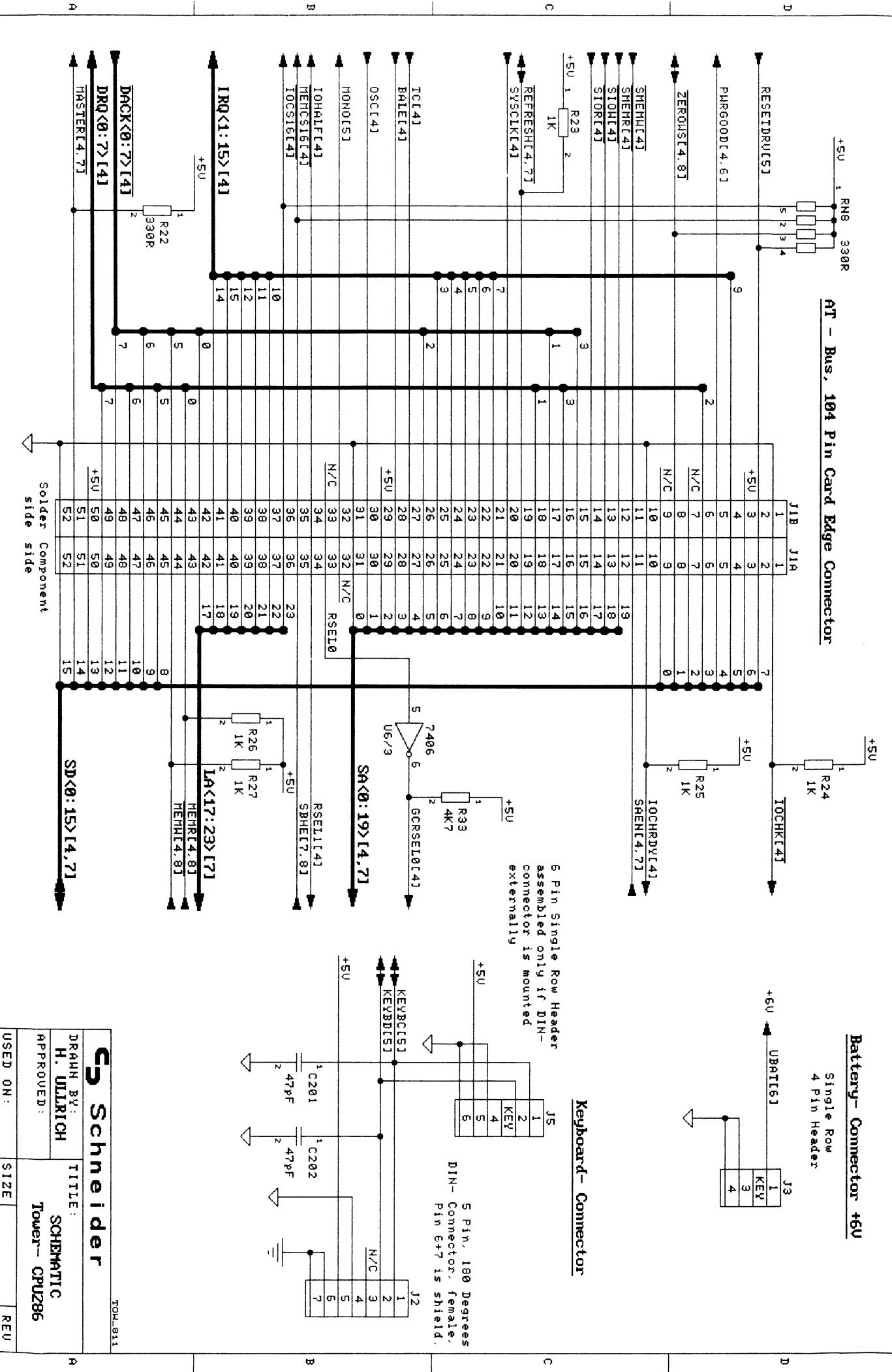
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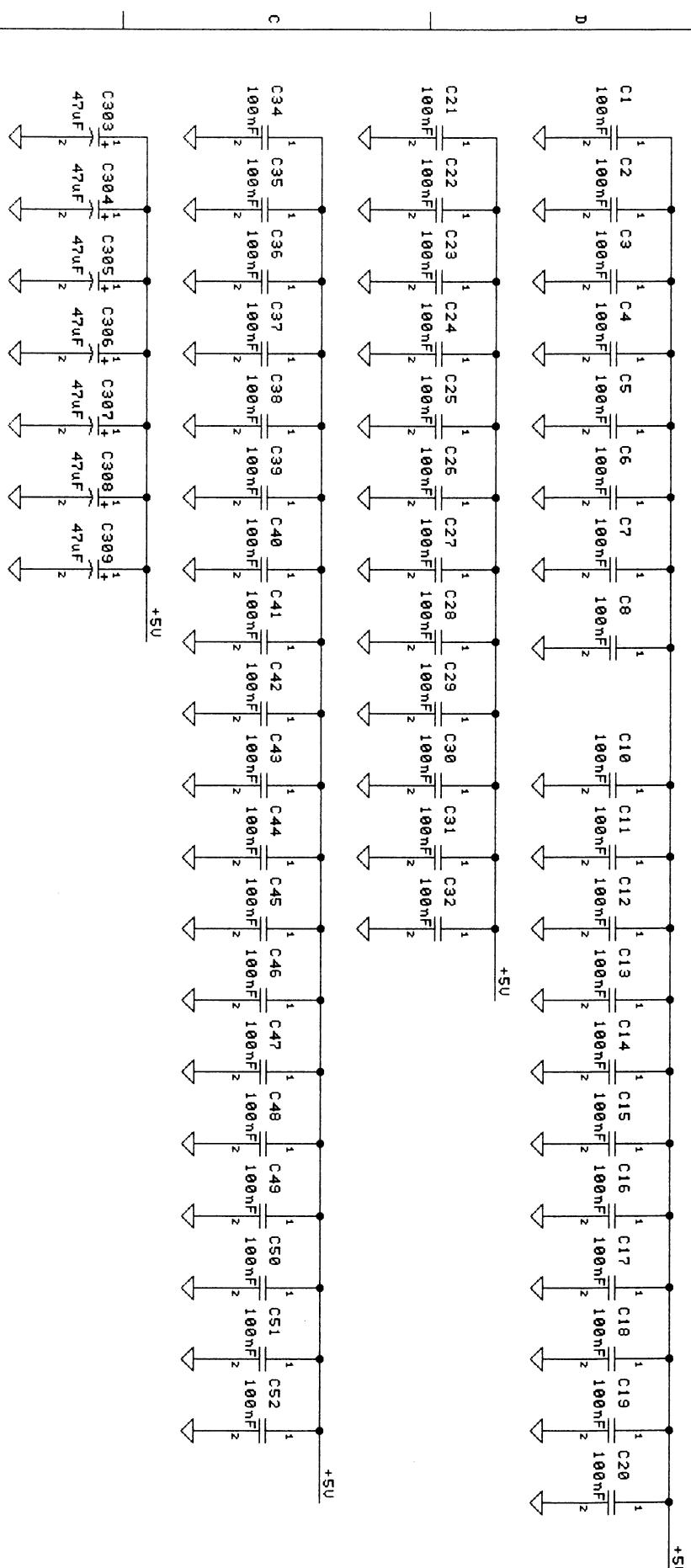
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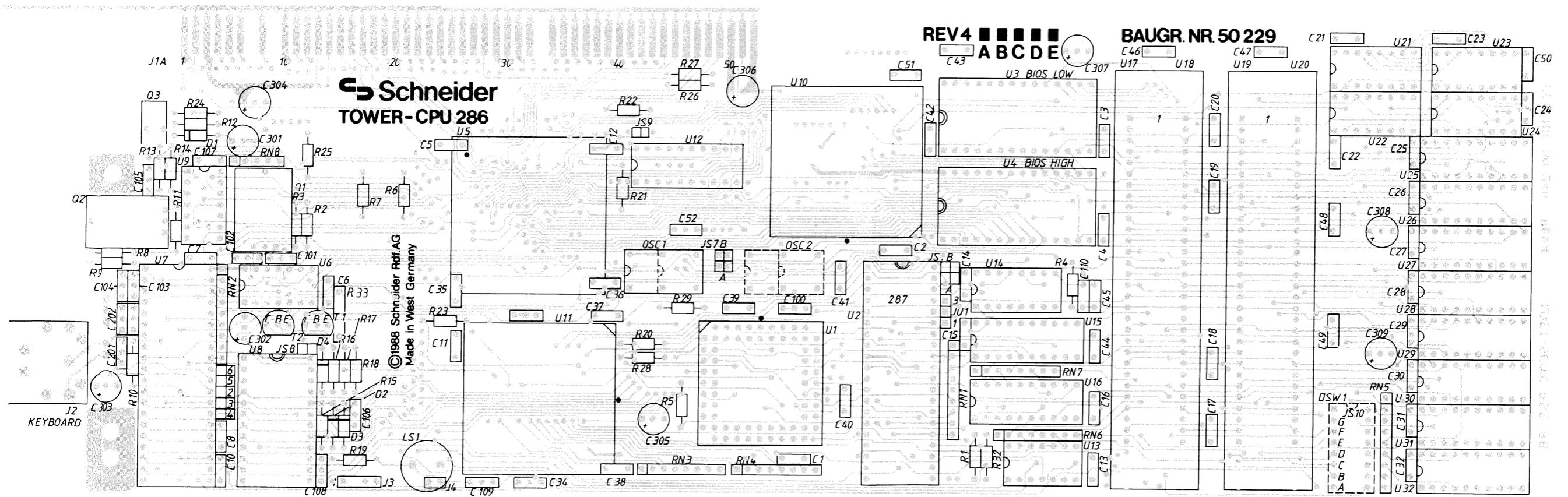
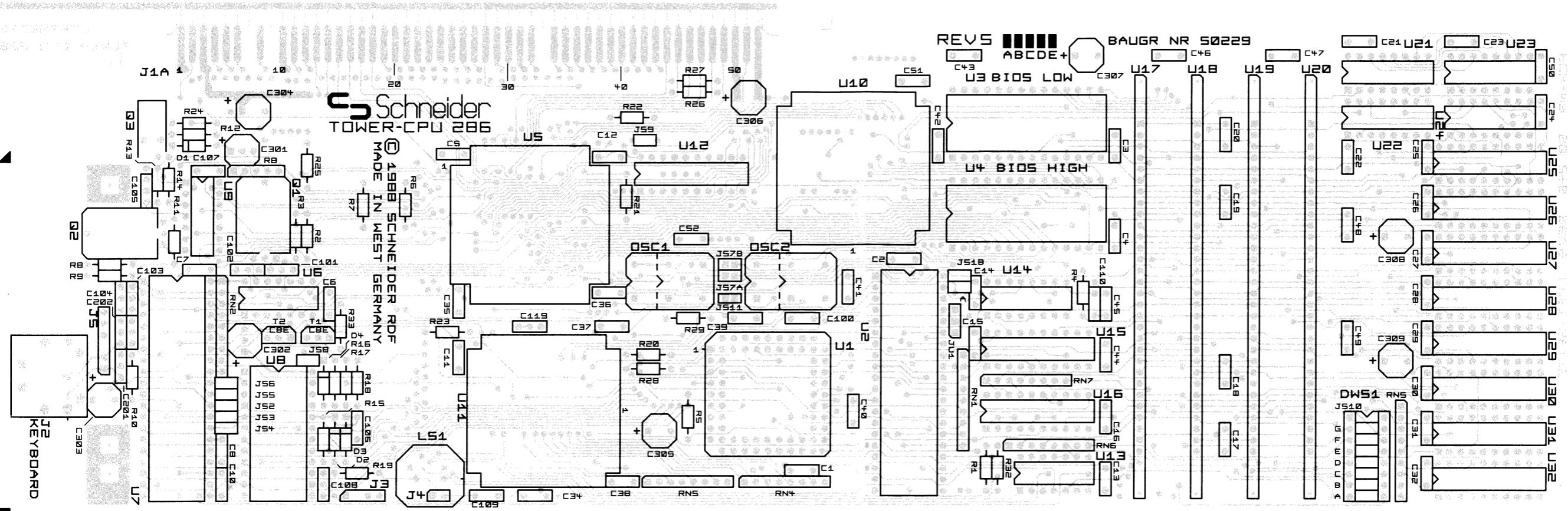
C Schneider			
DRAWN BY: B. ASSMANN	TITLE: SCHEMATIC Tower-CPU286		
APPROVED:			
USED ON: Tower-AT	SIZE A 3	50 229	REV 8
DATE: 11-02-88	SHEET: 12 of 12		

Ersatzteilliste für Platine Best. (D) Tower AT CPU
 Parts List PCB (D) Tower AT CPU

Bestell-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe
50 115 00	IC 80286	IC 80286	U 1	F 4
50 444 00	IC EPROM 256K prog.	IC EPROM 256K prog.	U 3	C 9
50 445 00	IC EPROM 256K prog.	IC EPROM 256K prog.	U 4	C 9
50 047 00	IC GC 101C CPU Contr. (Rev. 4)	IC GC 101C CPU Contr. (Rev. 4)	U 5	F 5
50 776 00	IC GC 101D CPU Contr. (Rev. 5)	IC GC 101D CPU Contr. (Rev. 5)	U 5	F 5
50 122 00	IC 7406	IC 7406	U 6	A 7
50 243 00	IC 8042 prog.	IC 8042 prog.	U 7	C 3
50 177 00	IC DS 1287	IC DS 1287	U 8	D 4
50 323 00	IC MC 14069	IC MC 14069	U 9	A 3
50 045 00	IC GC 102 Data	IC GC 102 Data	U 10	D 7
50 046 00	IC GC 102A Address	IC GC 102A Address	U 11	D 7
50 249 00	IC 74 ALS 245	IC 74 ALS 245	U 12	B 1
50 123 00	IC 74 F 00	IC 74 F 00	U 13	A 3
50 242 00	IC 74 F 175	IC 74 F 175	U 14	A 8
50 334 00	IC PAL 16L8BCN RAS-PAL	IC PAL 16L8BCN RAS-PAL	U 15	B 8
50 333 00	IC PAL 16L8BCN CAS-PAL	IC PAL 16L8BCN CAS-PAL	U 16	B 8
50 160 00	IC DRAM 256x4	IC DRAM 256x4	U 25-28	F 4
50 379 00	IC 74 HC 132	IC 74 HC 132	U 33	A 5
50 338 00	Diode 1 N 4148	Diode 1 N 4148	D 1,5	A 0
50 325 00	Quarz 14,31818 MHz	Quarz 14,31818 MHz	Q 1	B 3
50 326 00	Quarz 8,0 MHz	Quarz 8,0 MHz	Q 2	B 0
50 327 00	Osz. 20,0 MHz	Osc. 20.0 MHz	OSC 1	C 0
50 345 00	Elko rad. 47µF/16V	CE 47µF/16V	C 303-309	A 2
50 344 00	Tantal 10µF/16V	CE 10µF/16V	C 301	A 4
50 381 00	Tantal 1µF/16V	CE 1µF/16V	C 310	A 3
50 316 00	R-Netzwerk 8x10K	Network 8x10K	RN 1,5	A 3
50 319 00	R-Netzwerk 8x4K7	Network 8x4K7	RN 2	A 3
50 382 00	R-Netzwerk 4x68R	Network 4x68R	RN 3, 4, 6, 7	A 2
50 331 00	R-Netzwerk 4x330R	Network 4x330R	RN 8	A 2
50 332 00	Summer	Buzzer	LS 1	A 8
50 181 00	Buchse Dioden 5 Pin	Socket Diode 5 Pin	J 2	A 5

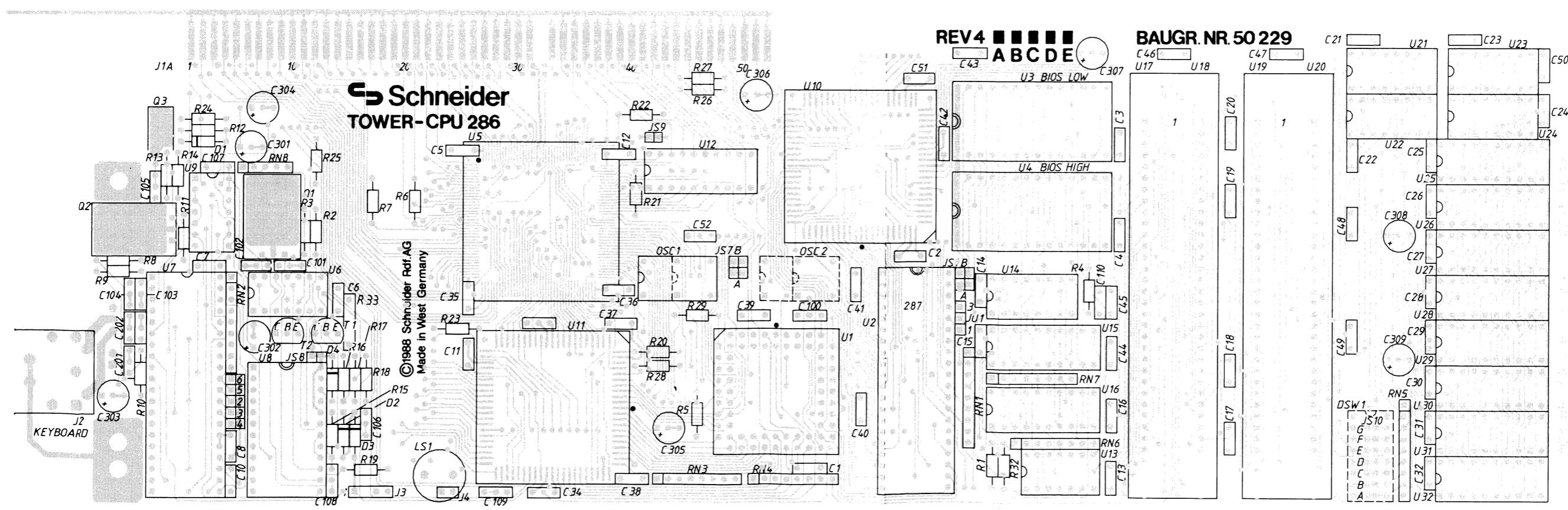
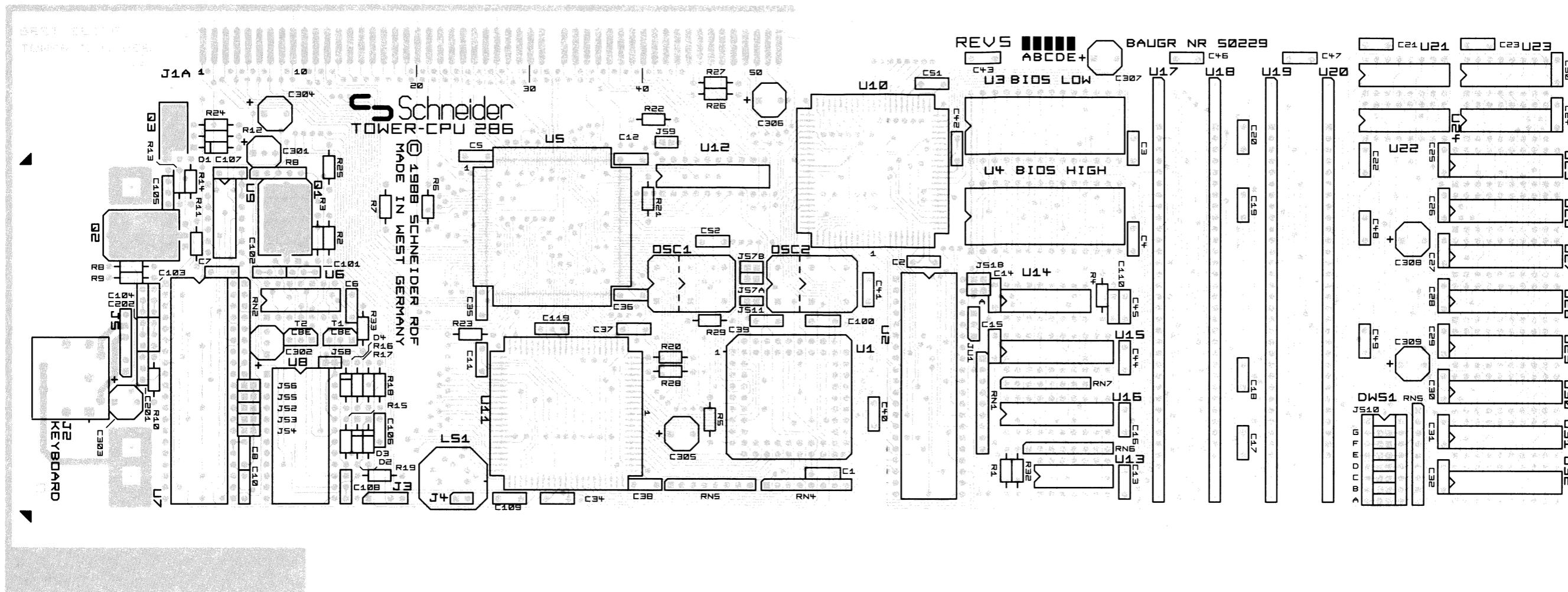
CPU

Soldering side



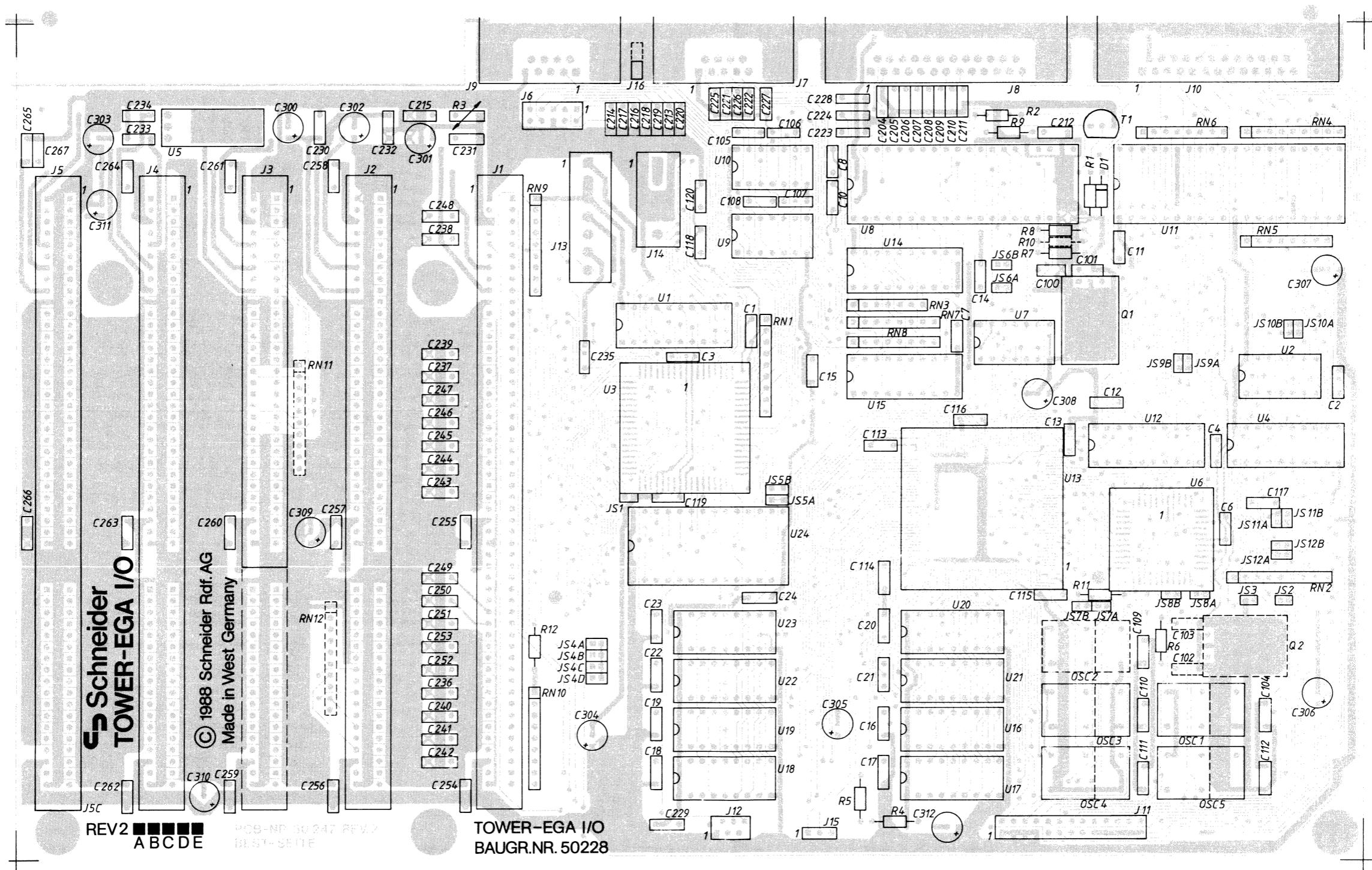
CPU

Component side

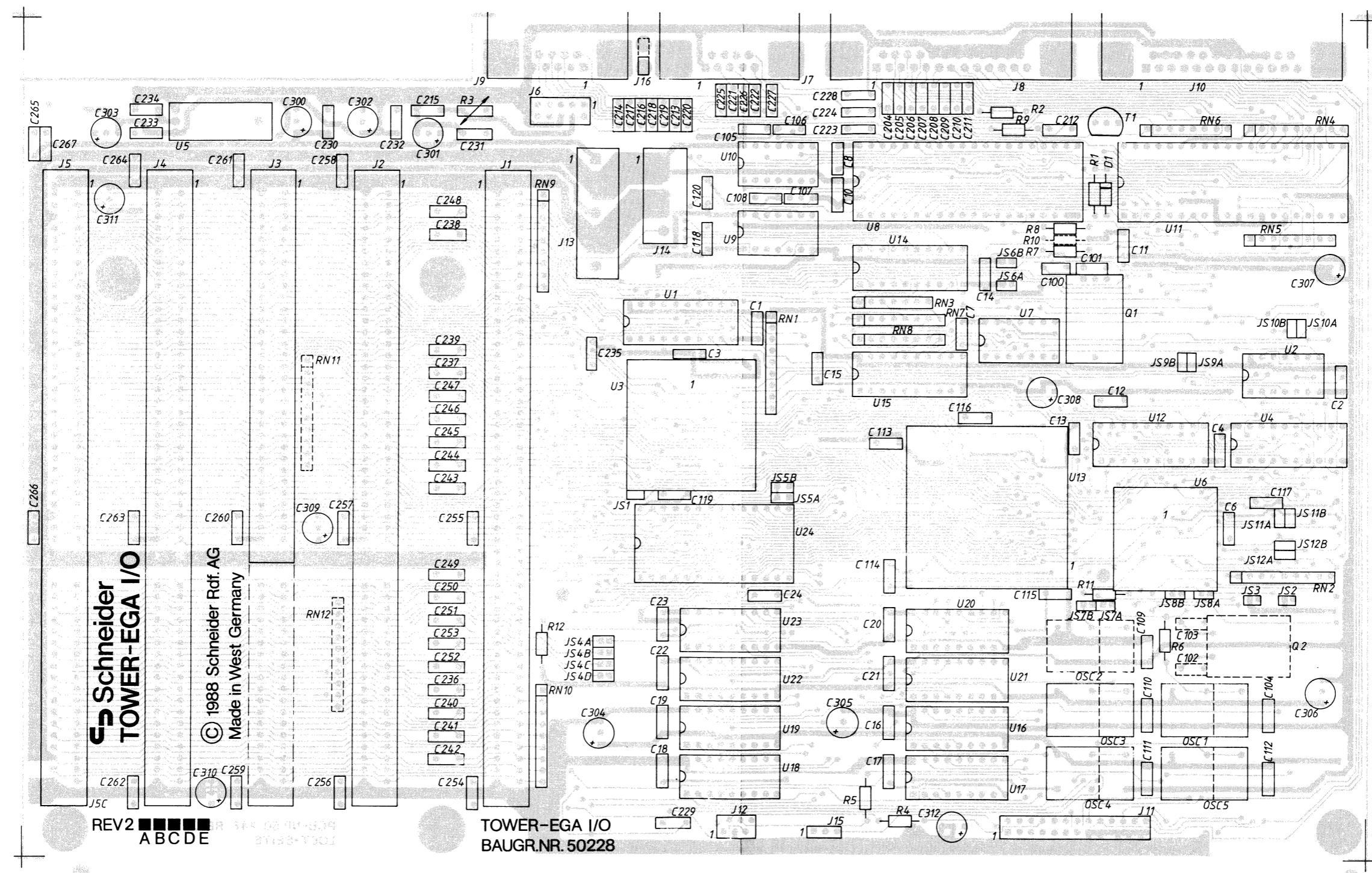


EGA I/O

Component side

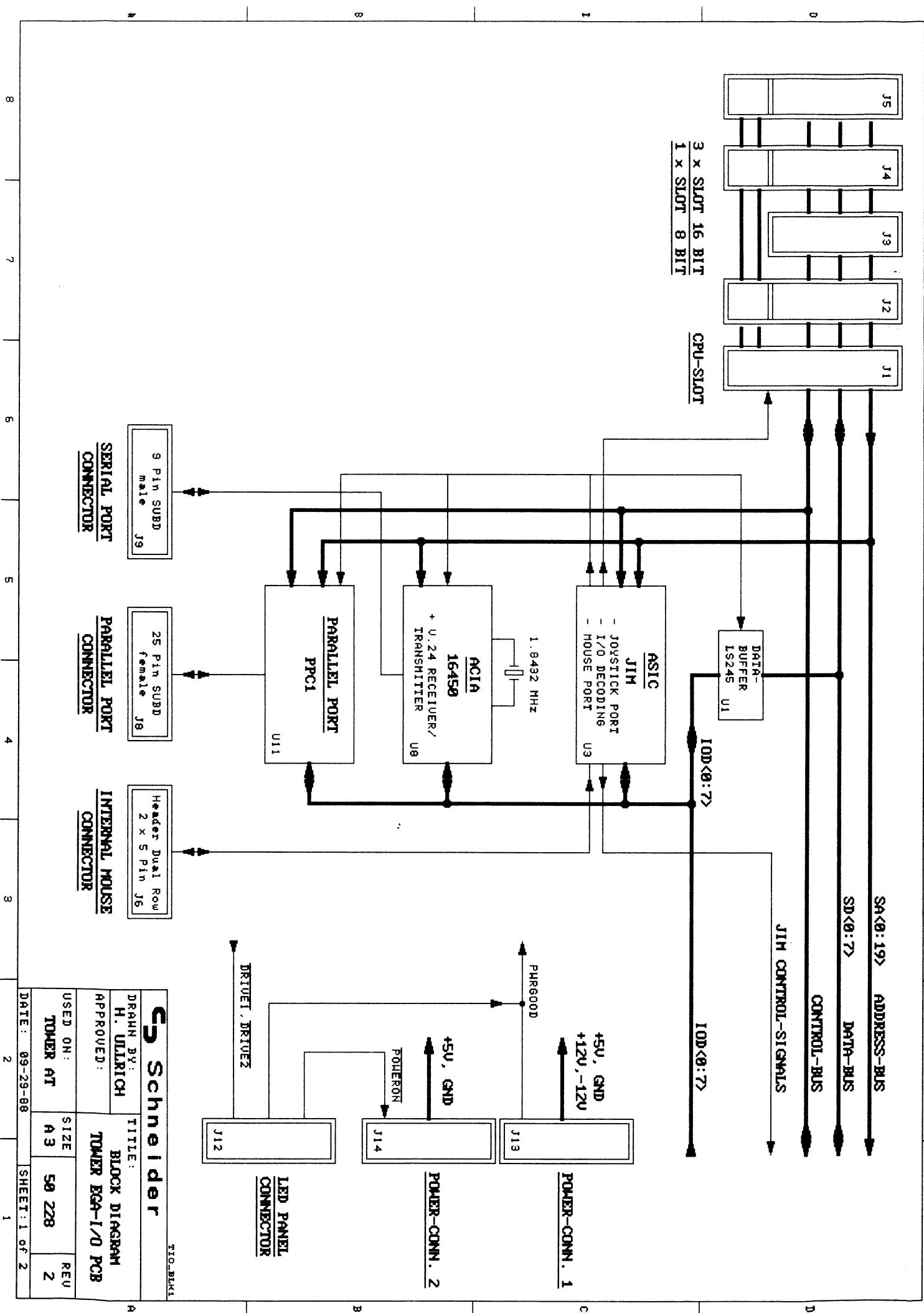


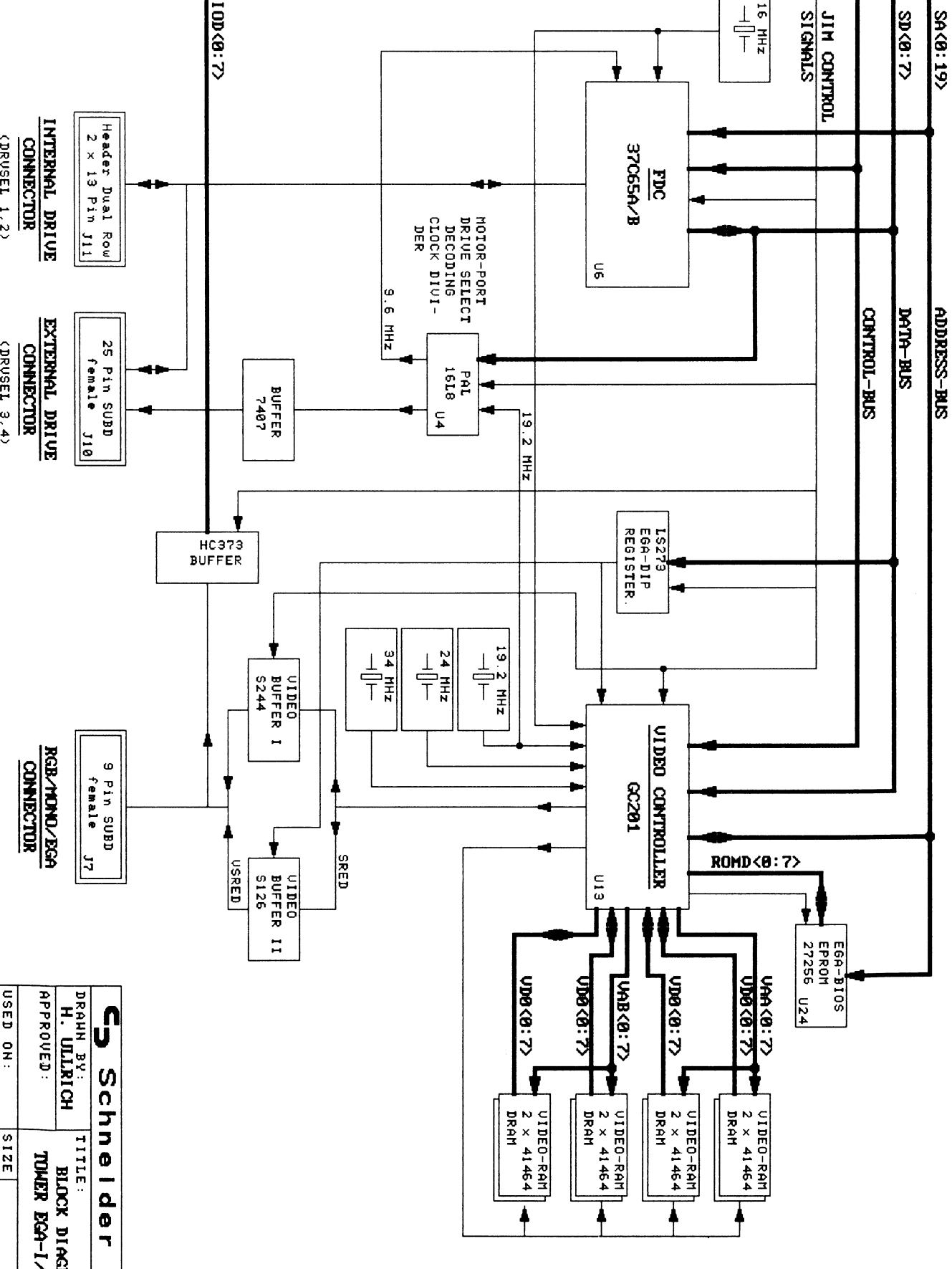
EGA I/O Soldering side



Ersatzteilliste für Platine Best. (D) Tower EGA I/O
 Parts List P.C.B (D) Tower EGA I/O

Bestell-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe
50 129 00	IC 74LS245	IC 74LS245	U 1	A 7
50 237 00	IC 7407	IC 7407	U 2	A 8
50 101 00	IC JIM TC17 GO 22AT	IC JIM TC17 GO 22AT	U 3	C 7
50 311 00	IC PAL 16 L8A Peog.	IC PAL 16 L8A Prog.	U 4	B 4
50 238 00	IC 7905 (TO220)	IC 7905 (TO220)	U 5	A 6
50 105 00	IC WD 37 C65A-JM00	IC WD 37 C65A-JM00	U 6	D 5
50 240 00	IC 74 F 126	IC 74 F 126	U 7	A 9
50 169 00	IC 16 C 450 PC	IC 16 C 450 PC	U 8	C 9
50 120 00	IC MC 1488	IC MC 1488	U 9	A 4
50 121 00	IC MC 1489	IC MC 1489	U 10	A 4
50 106 00	IC PPC 1	IC PPC 1	U 11	C 2
50 239 00	IC 74 LS 237	IC 74 LS 237	U 12	A 6
50 147 00	IC GC-201	IC GC-201	U 13	F 2
50 125 00	IC 74 HC 373	IC 74 HC 373	U 14	A 8
50 241 00	IC 74 F 244	IC 74 F 244	U 15	B 0
50 110 00	IC DRAM 64Kx4 120ns	IC DRAM 64Kx4 120ns	U 16-23	D 4
50 447 00	IC EPROM 256K prog.	IC EPROM 256K prog.	U 24	C 9
50 338 00	Diode 1 N 4148	Diode 1 N 4148	D 1	A 0
50 358 00	Trans BC 337 B	Trans BC 337 B	T 1	A 2
50 312 00	Quarz 1,8432 MHz	Quarz 1,8432 MHz	Q 1	B 6
50 313 00	Osz. 16,0 MHz	Osc. 16,0 MHz	OSC 1	C 0
50 337 00	Osz. 34,0 MHz	Osc. 34,0 MHz	OSC 3	C 0
50 315 00	Osz. 24,0 MHz	Osc. 24,0 MHz	OSC 4	C 0
50 314 00	Osz. 19,2 MHz	Osc. 19,2MHz	OSC 5	C 0
50 365 00	Elko rad. 10µF/25V	CE 10µF/25V	C 300-303	A 2
50 345 00	Elko rad. 47µF/16V	CE 47µF/16V	C 304-312	A 2
50 316 00	R-Netzwerk 8x10K	R-Network 8x10K	RN 1	A 3
50 317 00	R-Netzwerk 8x1K	R-Network 8x1K	RN 2	A 3
50 320 00	R-Netzwerk 6x680K	R-Network 6x680K	RN 3	A 2
50 319 00	R-Netzwerk 8x4K7	R-Network 8x4K7	RN 4, 9, 10	A 3
50 318 00	R-Netzwerk 4x33R	R-Network 4x33R	RN 5-8	A 2
50 372 00	R-Netzwerk 9x10K	R-Network 9x10K	RN 11, 12	A 2
50 321 00	Widerstand PTC 0R75	Resistor PTC 0R75	R 3	B 0
50 178 00	Buchse Cardedge 104 Pin	Socket Cardedge 104 Pin	J 1	B 5
50 179 00	Buchse Cardedge 98 Pin	Socket Cardedge 98 Pin	J 2, 4, 5	B 3
50 180 00	Buchse Cardedge 62 Pin	Socket Cardedge 62 Pin	J 3	B 1
50 252 00	Stiftleiste RM 2,54 10pol.	Connector RM 2.54 10-pol.	J 6	A 2
50 132 00	Buchse SUB D 9 Pin	Socket SUB D 9 Pin	J 7	A 9
50 133 00	Buchse SUB D 25 Pin	Socket SUB D 25 Pin	J 8, 10	B 2
50 131 00	Buchse SUB D 9 Pin	Socket SUB D 9 Pin	J 9	A 9
50 139 00	Stiftleiste RM 2,54 26pol.	Connector RM 2.54 26-pol.	J 11	A 4





C Schneider

TOWER.EBLKZ

LTR	DESCRIPTION	DATE	APPROVED
1	ADVANCED ENGINEERING RELEASE	84-27-88	RME
2	UPDATE	85-04-88	RME
3	UPDATE	85-24-88	RME
4	UPDATE, CORRECTIONS, ADDED BLOCK CAPS	85-22-88	H.ULRICH
5	NEW LAYOUT (PCB REV.2)	87-11-88	H.ULRICH
6	CHANGED 2 SIGNAL NAMES, ADDED PAGE REFERENCES	88-10-88	H.ULRICH
7	CHANGED R8 VALUE TO 1K, ADDED C268 (C268 IS NOT INCLUDED IN THE LAYOUT OR SILKSCREEN BUT AN ADDON REWORK?)	89-15-88	H.ULRICH
8	ADDED C121 (NOT INCLUDED IN LAYOUT OR SILKSCREEN - ADD-ON REWORK?) BUG FIX FOR UC-001 VIDEO CHIP	11-18-88	B.ASSMANN

DRAWING FILES: CONTENTS:

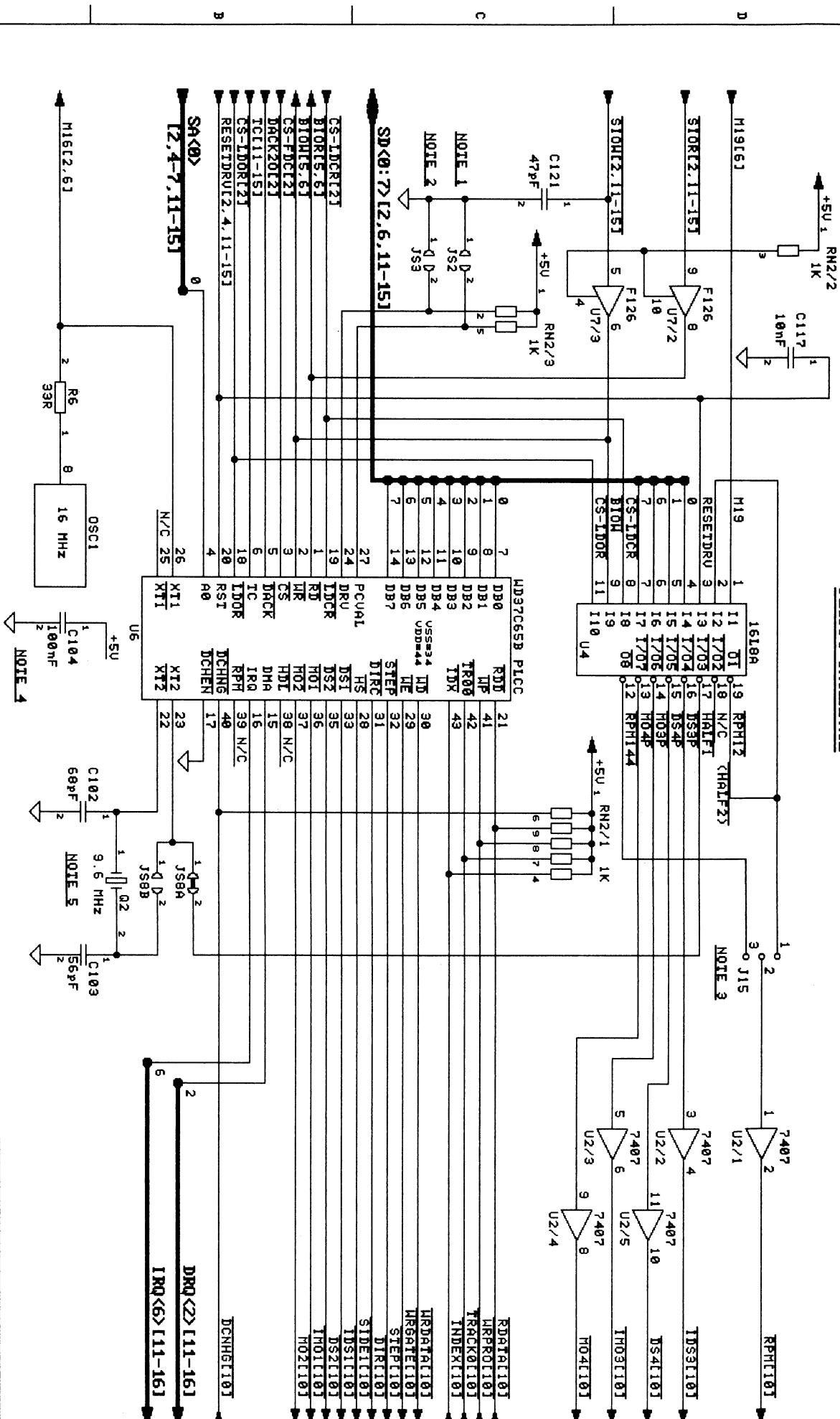
T10_81.DWG THIS SHEET
 T10_82.DWG ASIC JIM
 T10_83.DWG FLOPPY INTERFACE
 T10_84.DWG SERIAL INTERFACE
 T10_85.DWG PARALLEL INTERFACE
 T10_86.DWG VIDEO CONTROLLER
 T10_87.DWG VIDEO RAM, CHAR. ROM
 T10_88.DWG VIDEO INTERFACE
 T10_89.DWG CONNECTORS I
 T10_810.DWG CONNECTORS II
 T10_811.DWG CPU SLOT
 T10_812.DWG NORMAL SLOT
 T10_813.DWG NORMAL SLOT
 T10_814.DWG NORMAL SLOT
 T10_815.DWG NORMAL SLOT
 T10_816.DWG BLOCK CAPS, SPARE GATES

Schneider

DRAWN BY: B. ASSMANN	TITLE: SCHEMATIC TOWER-BG/10		
APPROVED:			
USED ON: TOWER-BG	SIZE A3	REV 8	

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FLOPPY INTERFACE



NOTES: 1) JS2 SELECTS WRITE PRECOMP. VAL.: 1

J52 OPEN 125 125 125 125

J52 CLOSED 107 HI

SELECTS BPM EQUALITY

JUMPER IN POS. 1-2: 1.2MB OR AT TYPE 1-44MHZ

JUMPER IN POS. 2-3: PS/2 TYPE 1 4MB

4) C104 IS BLOCK CAP TO OSC1

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Schneider

TIO-83

S Schneider			
DRAWN BY: B. ASSMANN	TITLE: SCHEMATIC		
APPROVED:	TIME-ESTIMATO		
USED ON: TOWER-AT	SIZE A 3	REV 50 228	REV 8
DATE: 11-18-88	SHEET 3 of 16		

SERIAL INTERFACE

COMOUT[2]

COMIN[2]

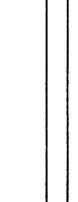
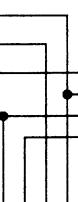
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B

C

D

 $+5V \xrightarrow{1.4K\Omega} RN4/1$
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 8
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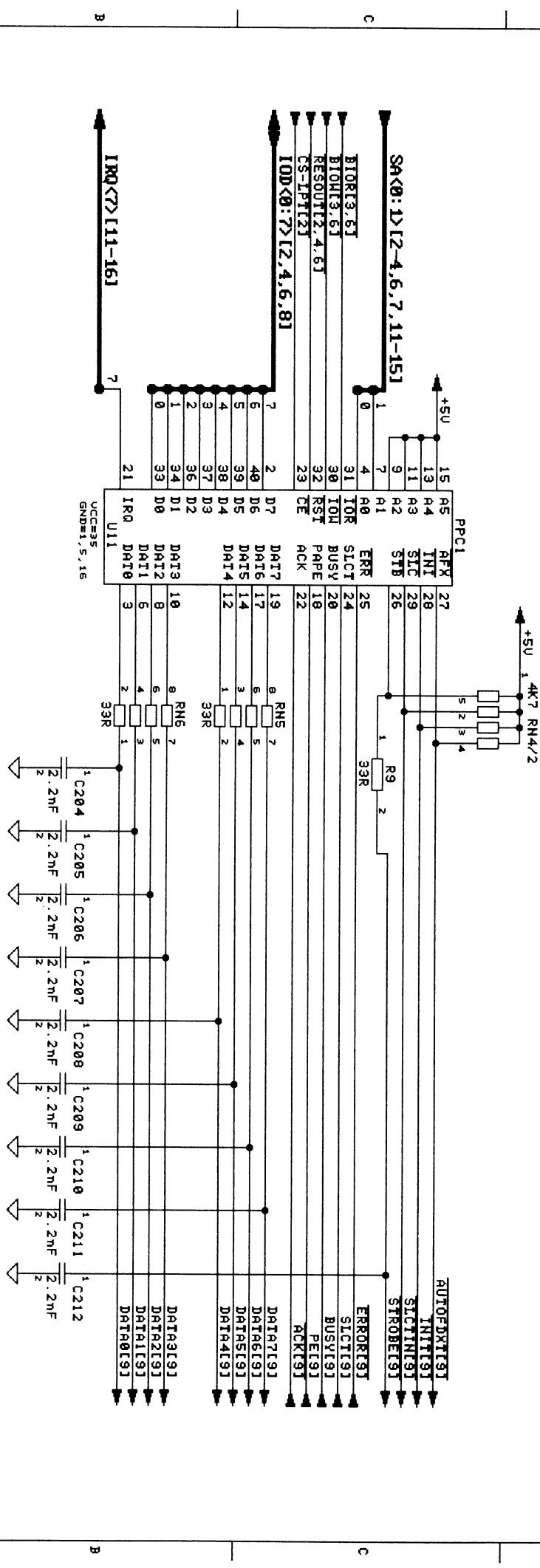
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C

PARALLEL INTERFACE



Schneller

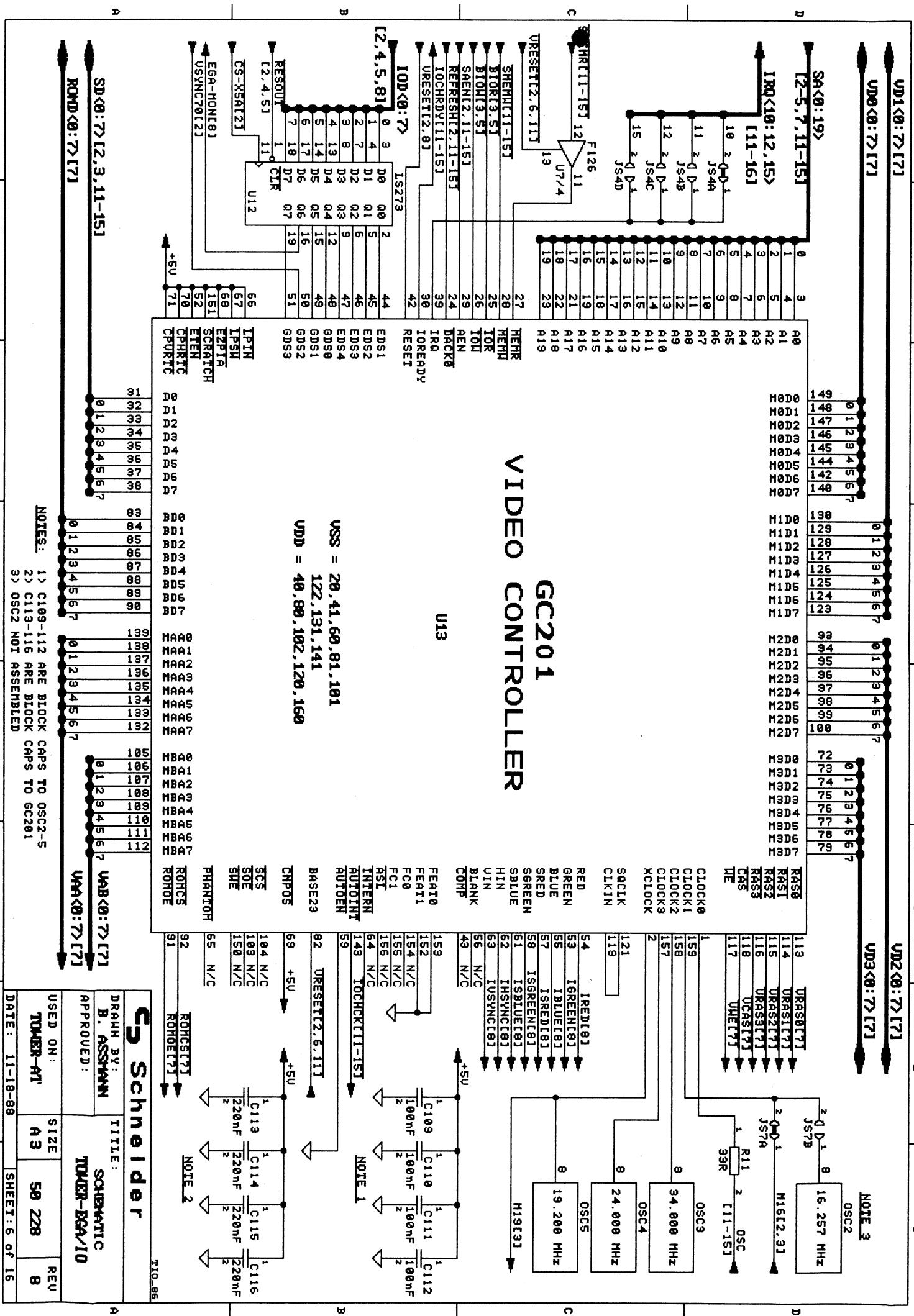
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DRAWN BY: TITLE: H. ULLRICH SCHEMATIC APPROVED: TUMER-KEG-10

DRAWN BY: TITLE: H. ULLRICH SCHEMATIC APPROVED: TUMER-KEG-10

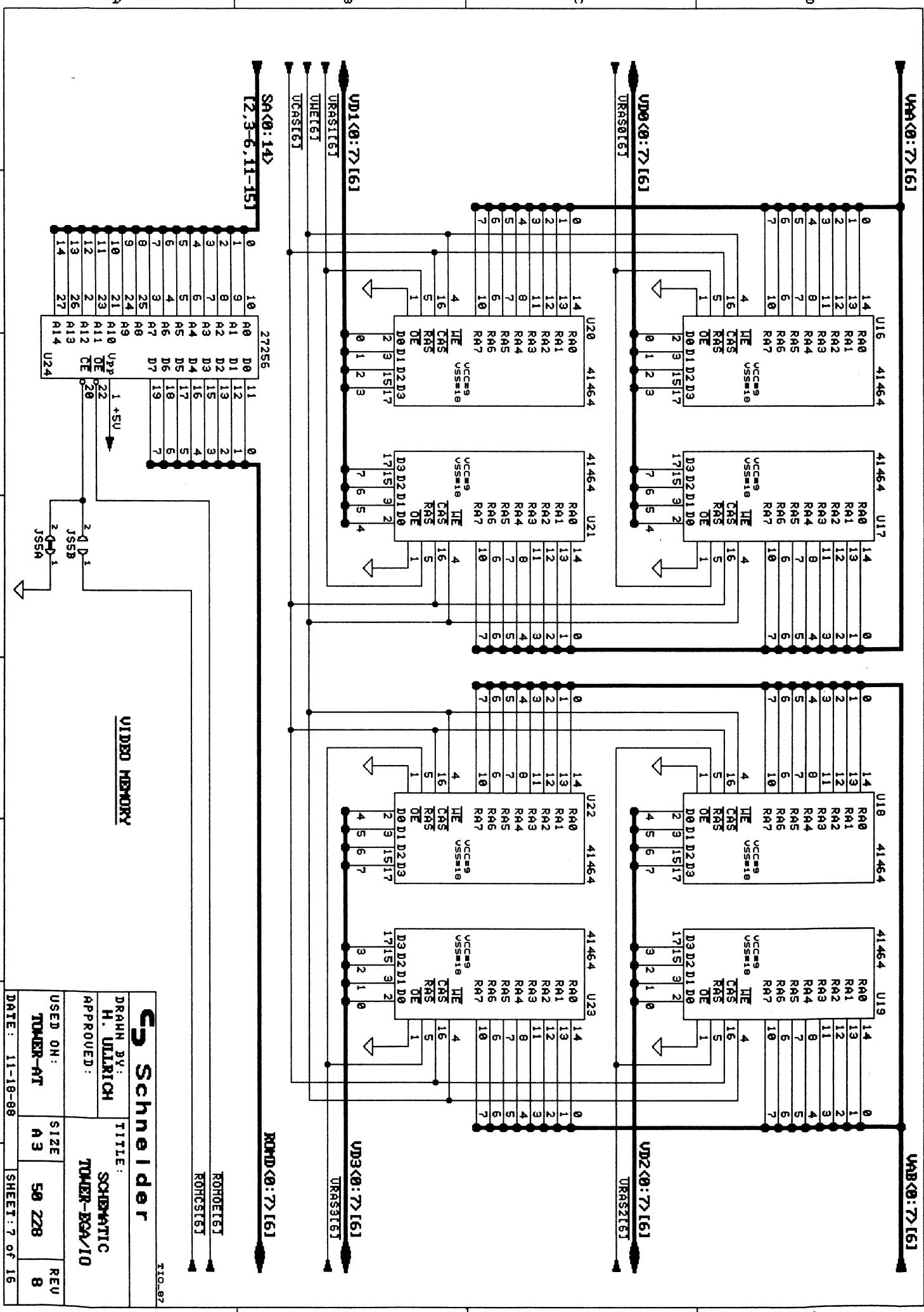
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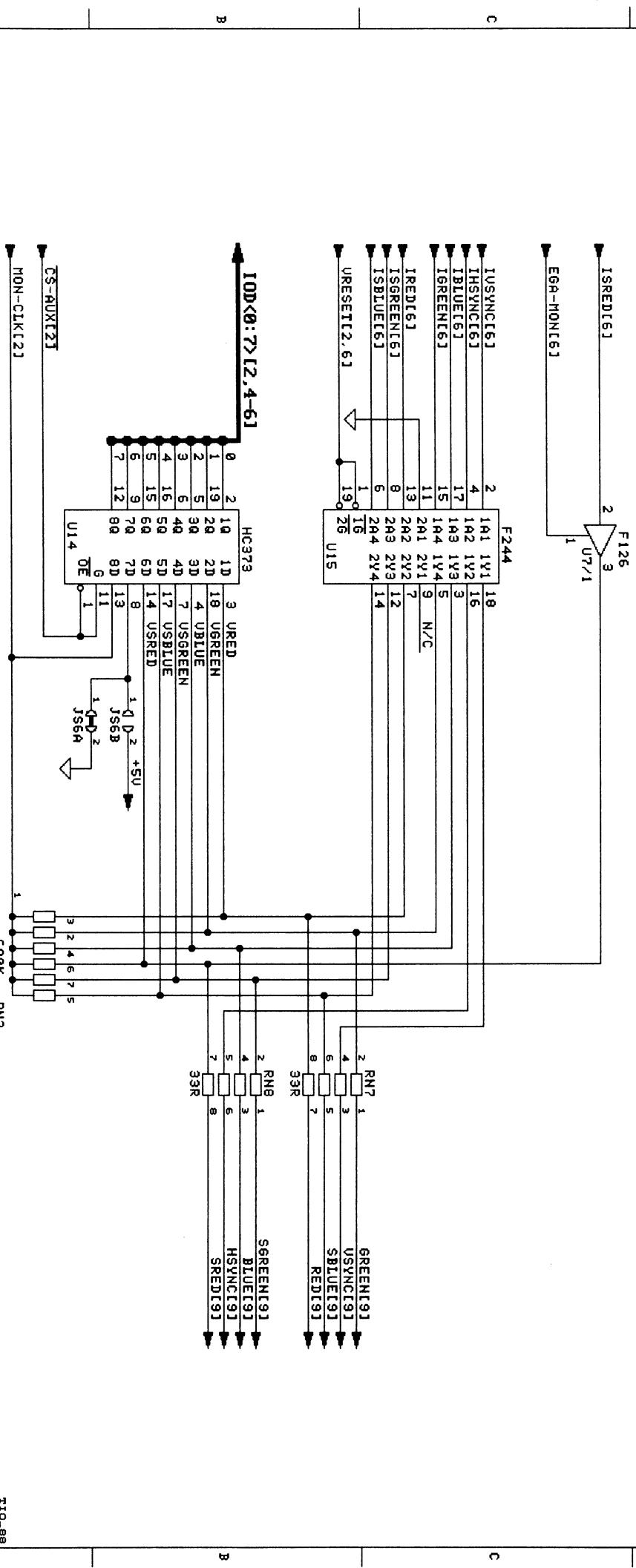
S Schneider

DRAWN BY: B. ASSMANN APPROVED: THERESA J. TITLE: SCHEMATIC

NOTES: 1) C109-112 ARE BLOCK CAPS TO DSC2-5
2) C113-116 ARE BLOCK CAPS TO GC201
3) DSC NOT ASSEMBLED



VIDEO INTERFACE

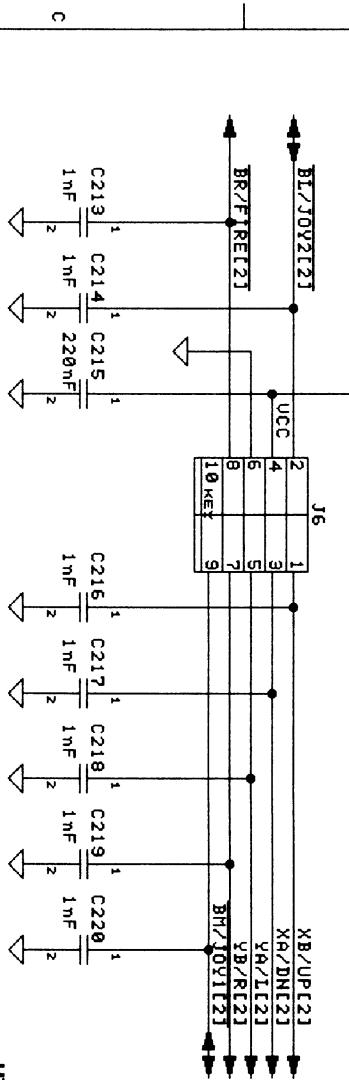


PARALLEL PORT

25 PIN SUBD COMM. FEMALE

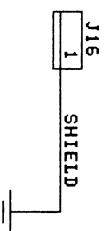
CURRENT LIMITING PIC
HEADER DUAL ROW 2x5 PIN

0R75
PC10250

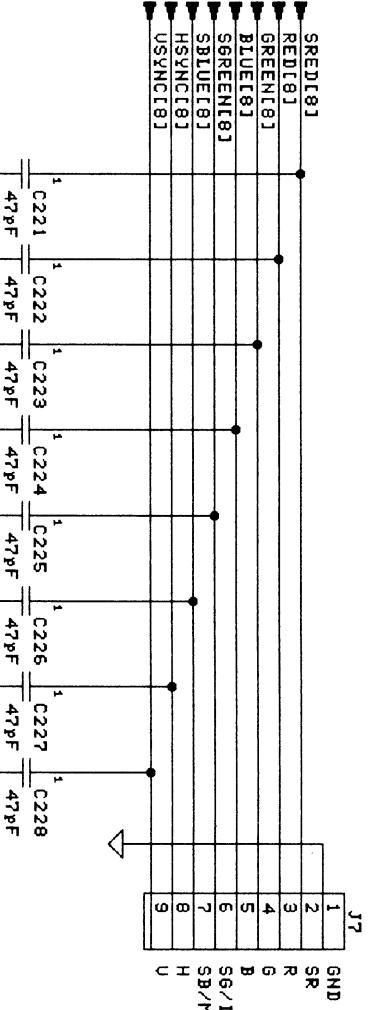


MOUSE-JOYSTICK
HEADER DUAL ROW 2x5 PIN

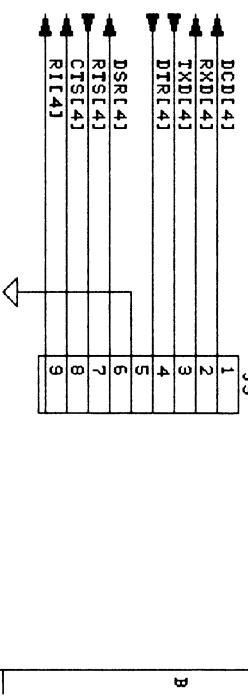
SHIELD CONNECTOR
HEADES FASTON 2.8 x 0.8 mm



VIDEO MONO/RGB
9 PIN SUBD COMM. FEMALE



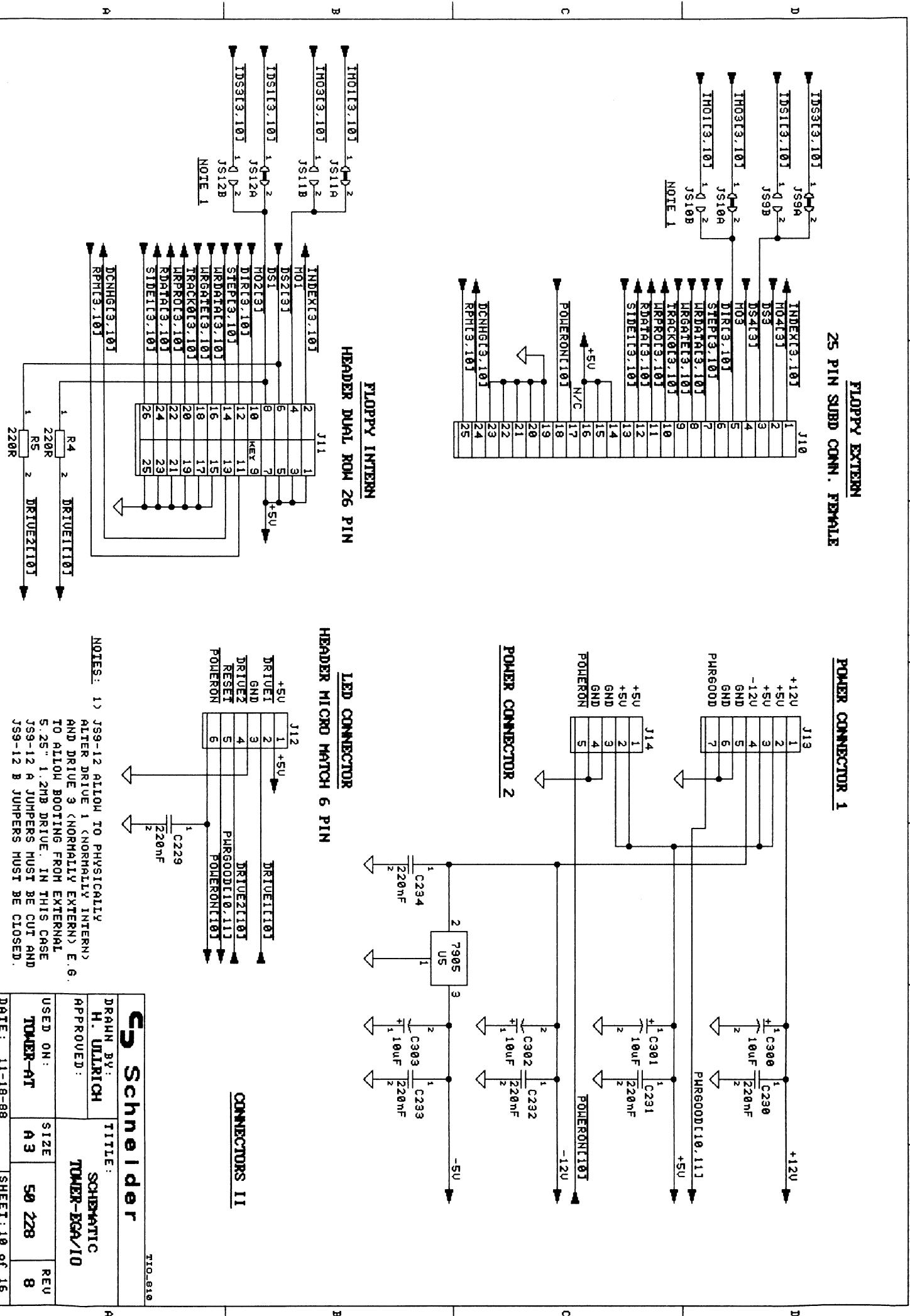
SERIAL PORT
9 PIN SUBD COMM. MALE

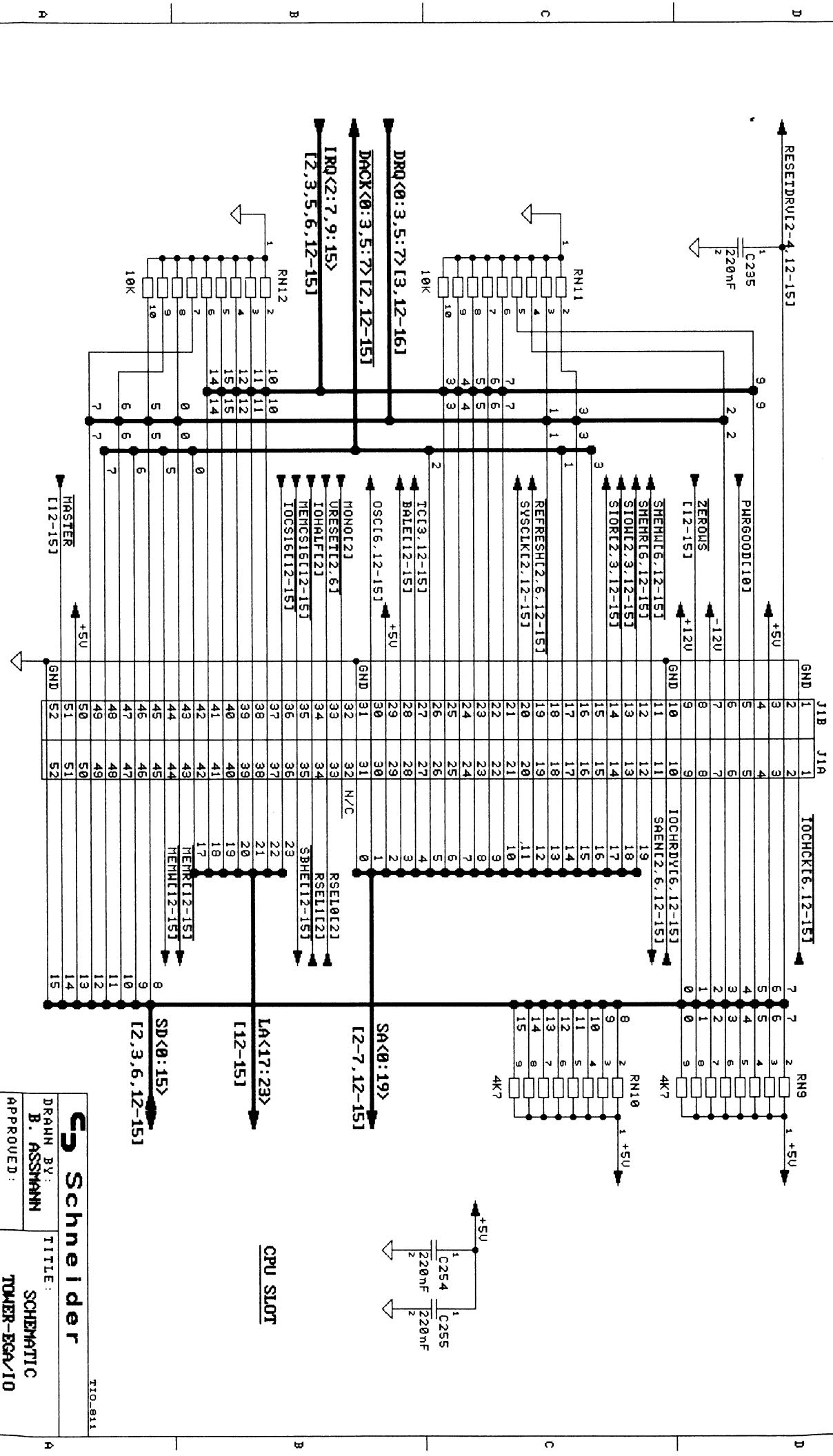


CONNECTORS I

Schneider

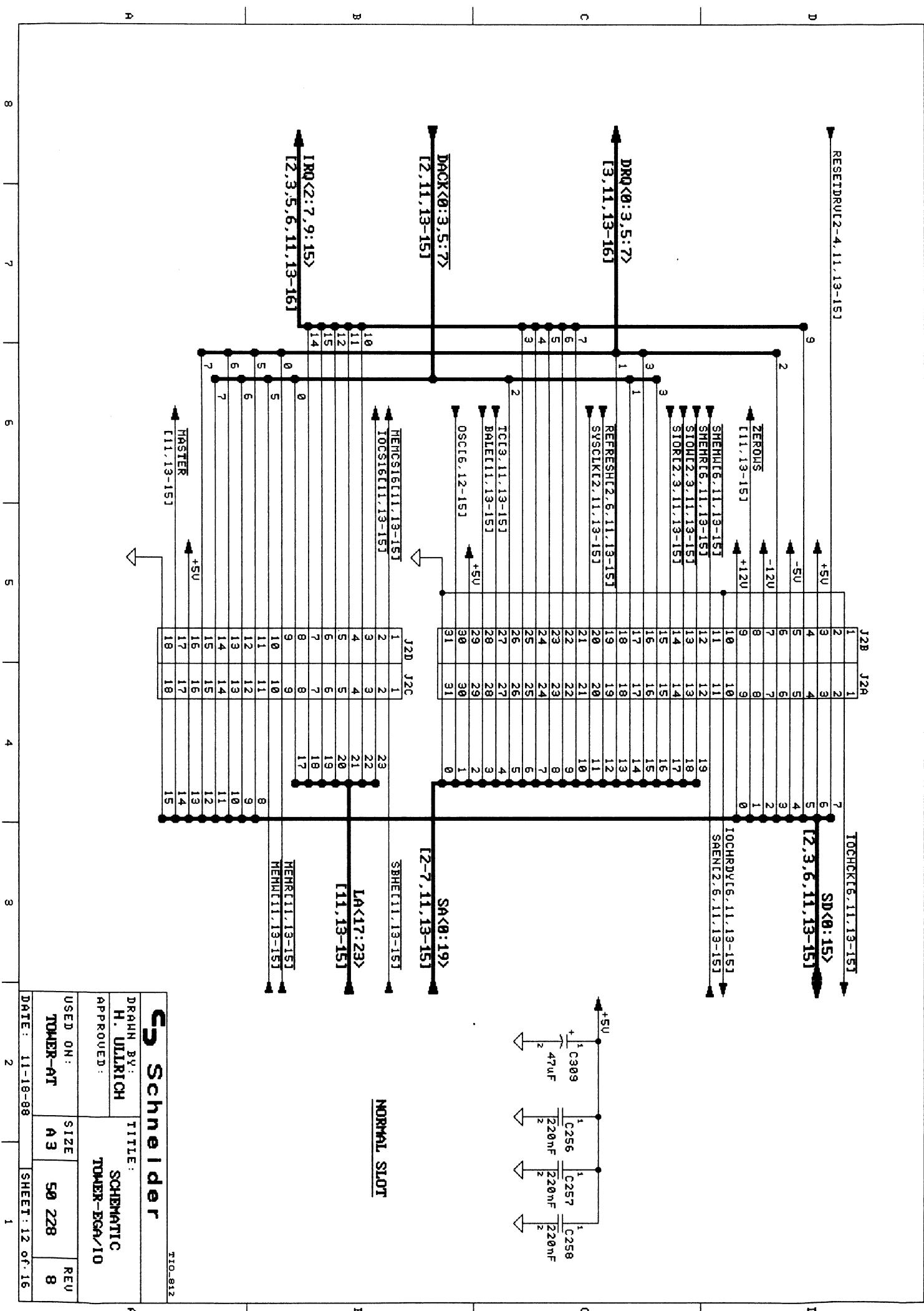
DRAWN BY: H. ULLRICH
APPROVED:
USED ON: TIMER-AT
SIZE A3
REV 8
TITLE: SCHEMATIC
TOWER-EKA/IO
DATE: 11-18-89 SHEET: 9 of 16

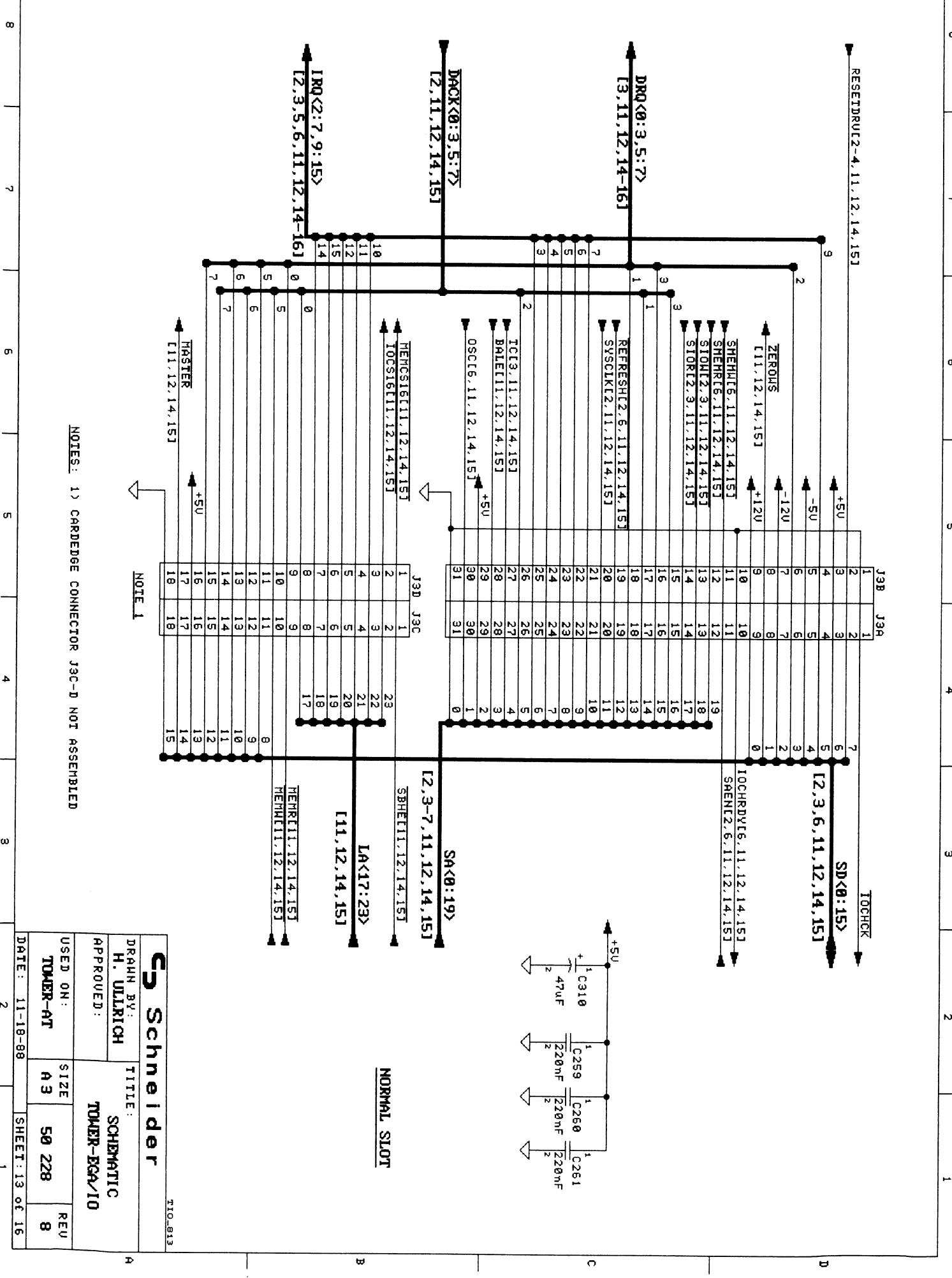


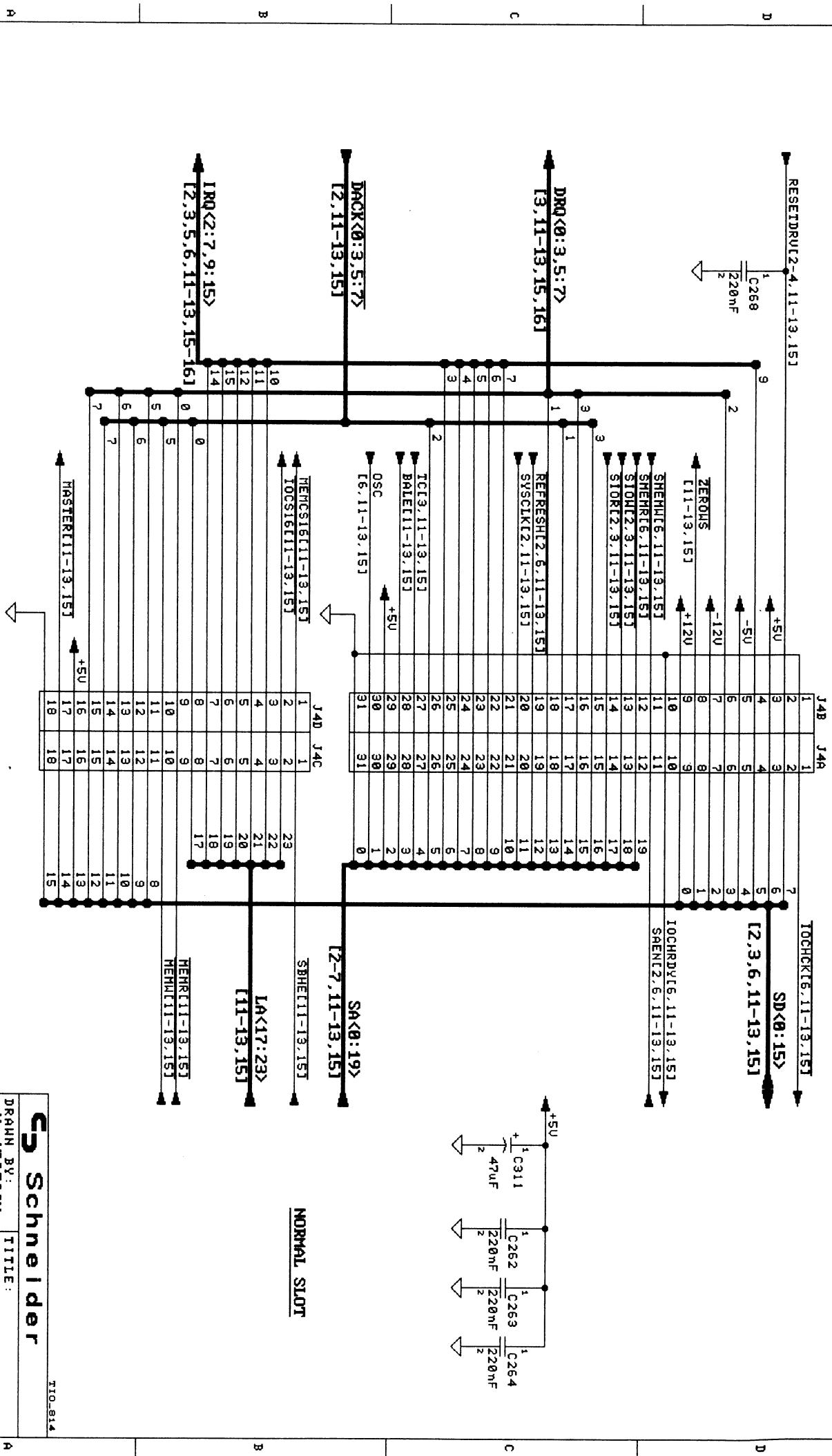


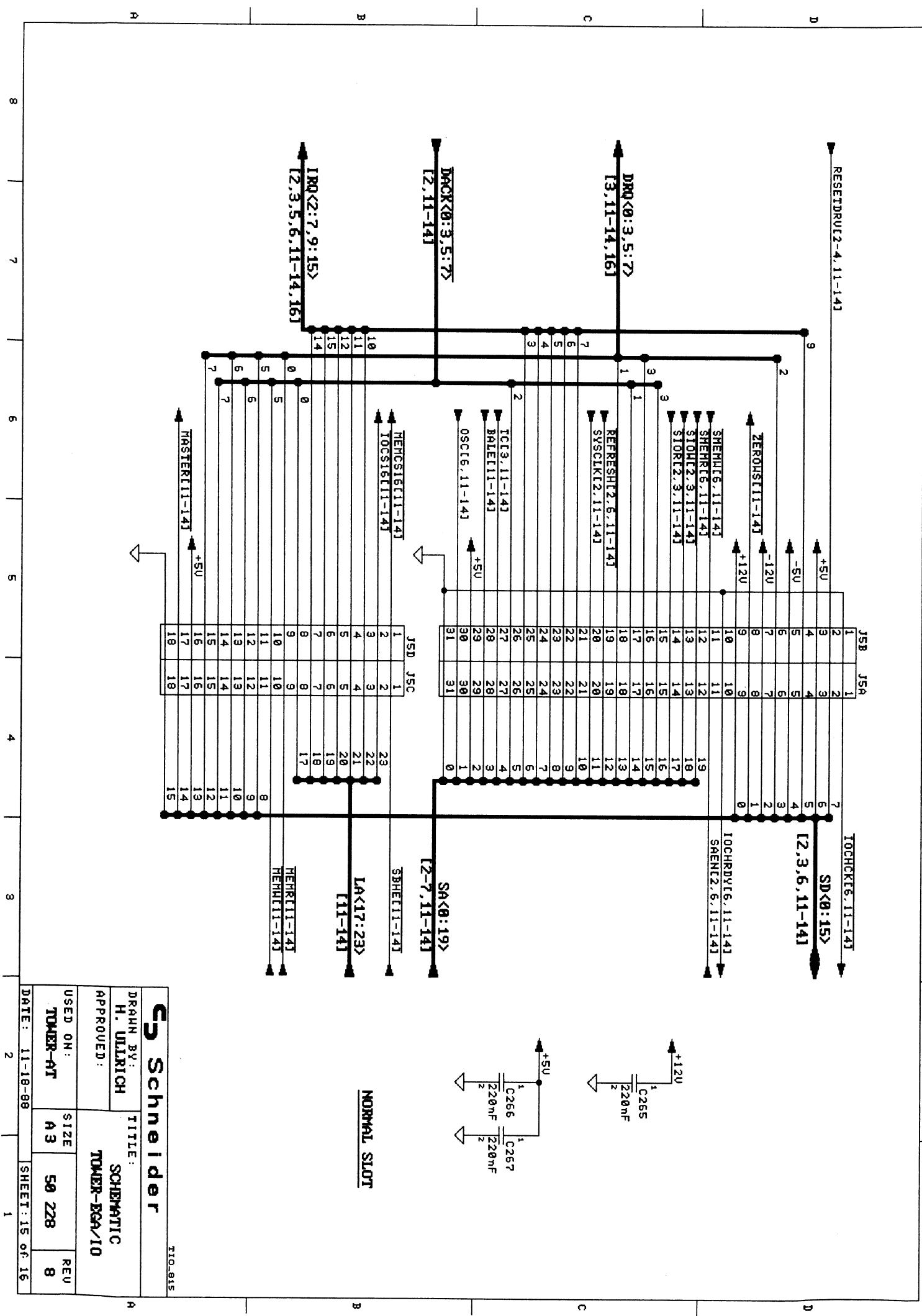
Schneider

USED ON: **TUMER-AT**
 SIZE: **A 3** REV: **8**
 DATE: **11-19-98** SHEET: **11 of 16**





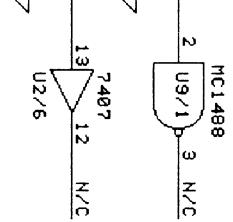




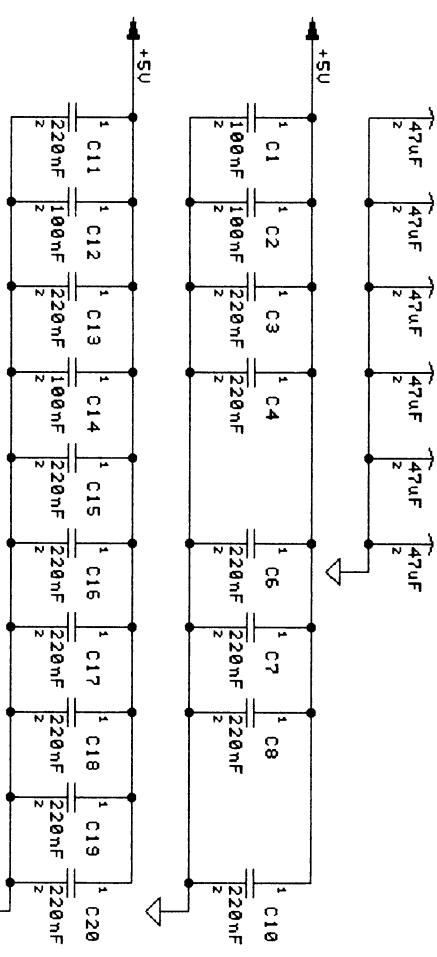
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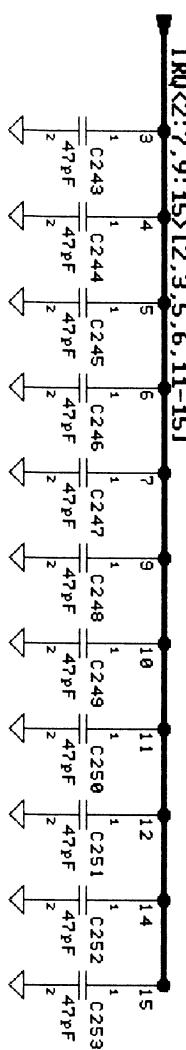
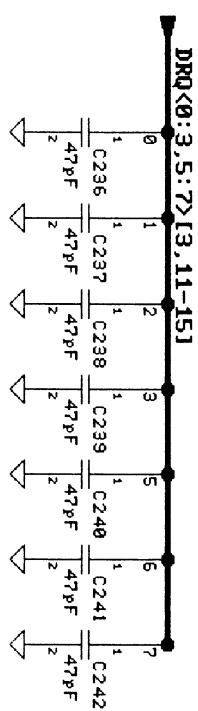
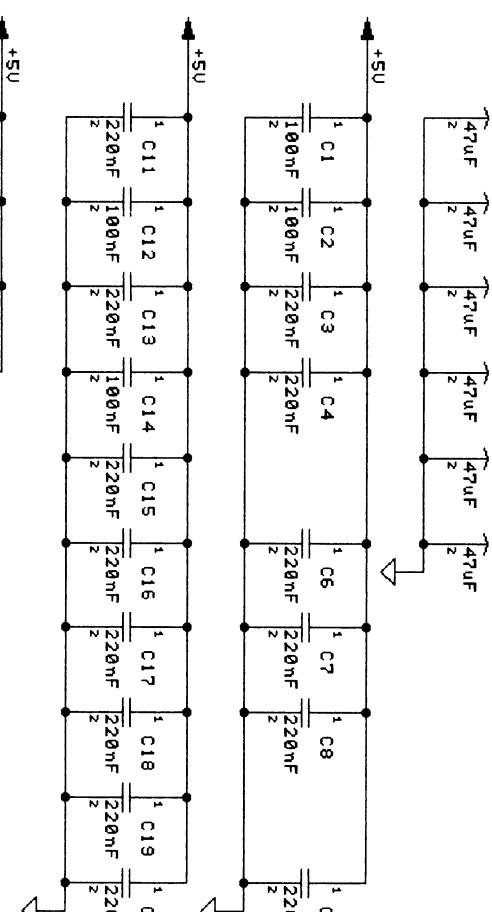
SPARE GATES



BLOCK CAPS +5V:



BLOCK CAPS -5V:



B

B

C

C

8

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Schneider

TIO-816

DRAWN BY: B. ASSMANN TITLE: SCHEMATIC
APPROVED: TOMER-EGH/10

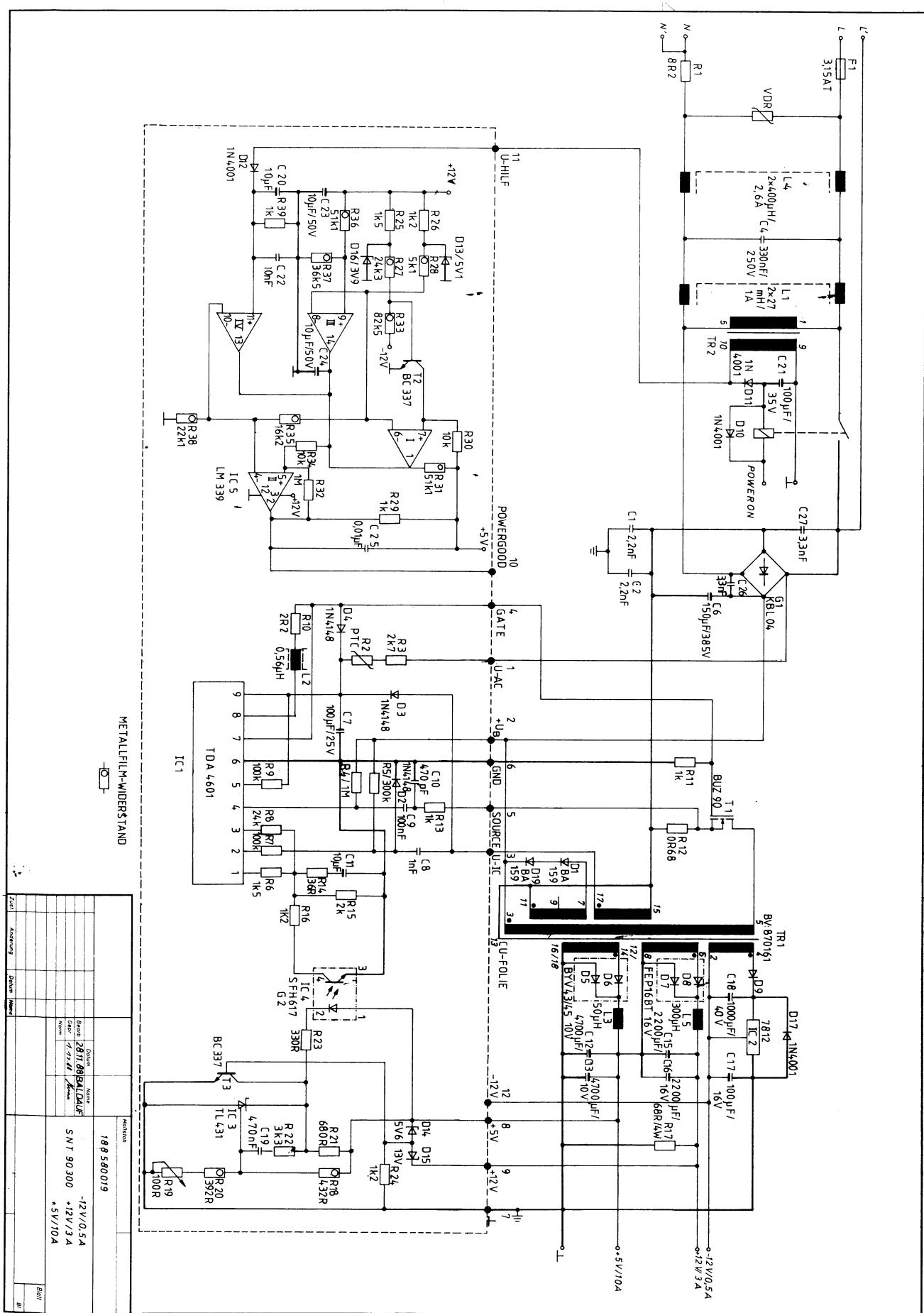
USED ON:	SIZE	REV
TIMER-AT	A 3	50 228 8

DATE: 11-18-88

SHEET: 16 of 16

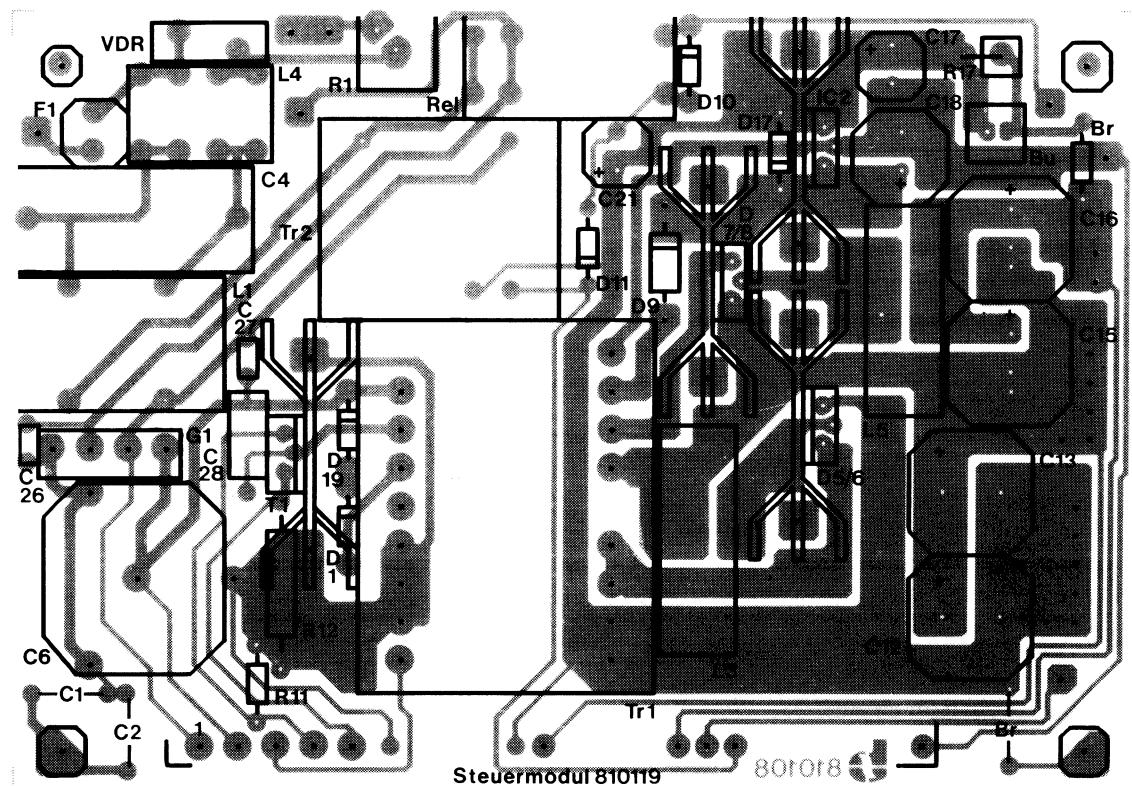
Schematic diagram

Power supply SCD–SNT 90/B03

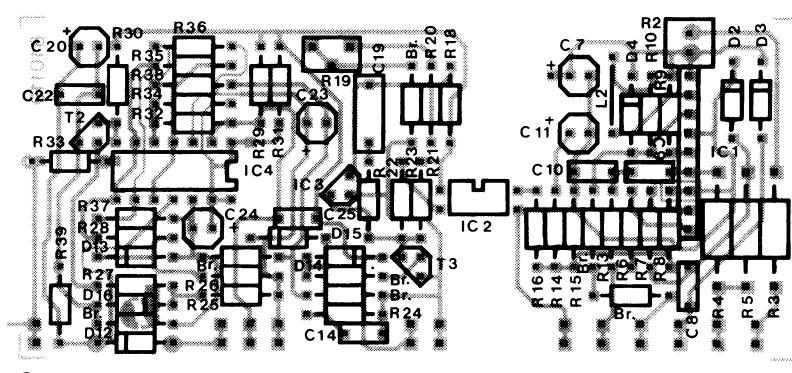


Power supply SCD–SNT 90/B03

Component side

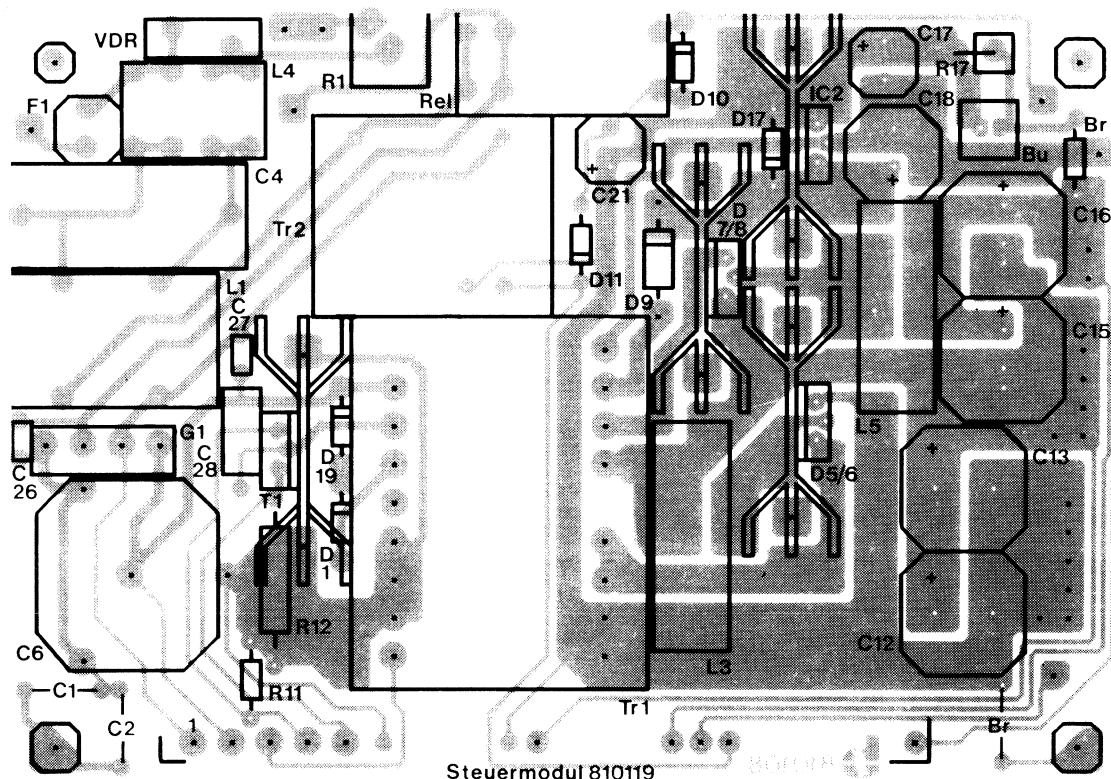


Schaltnetzteil „Tower“ SCD-SNT 90/01 B03 Id.580018 Ident Nr.7270-50215

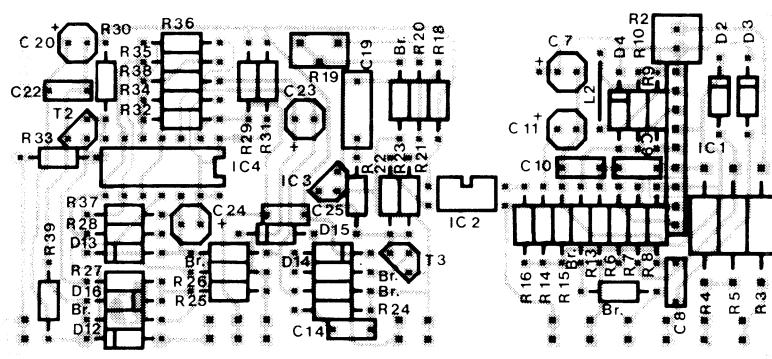


Power supply SCD–SNT 90/B03

Component side



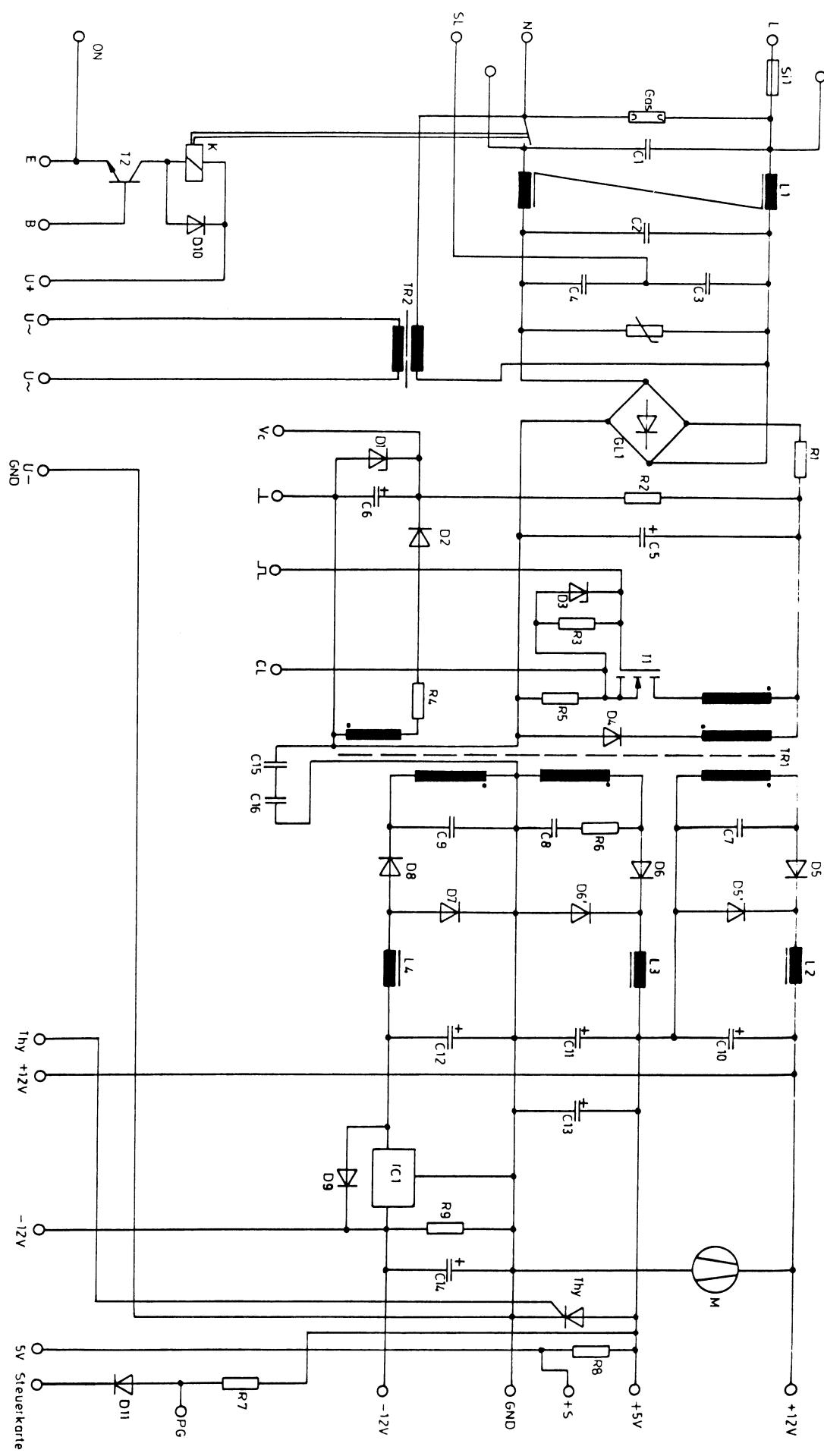
Schaltnetzteil „Tower“ SCD-SNT 90/01 B03 Id.580018 Ident Nr.7270-50215



Schematic diagram

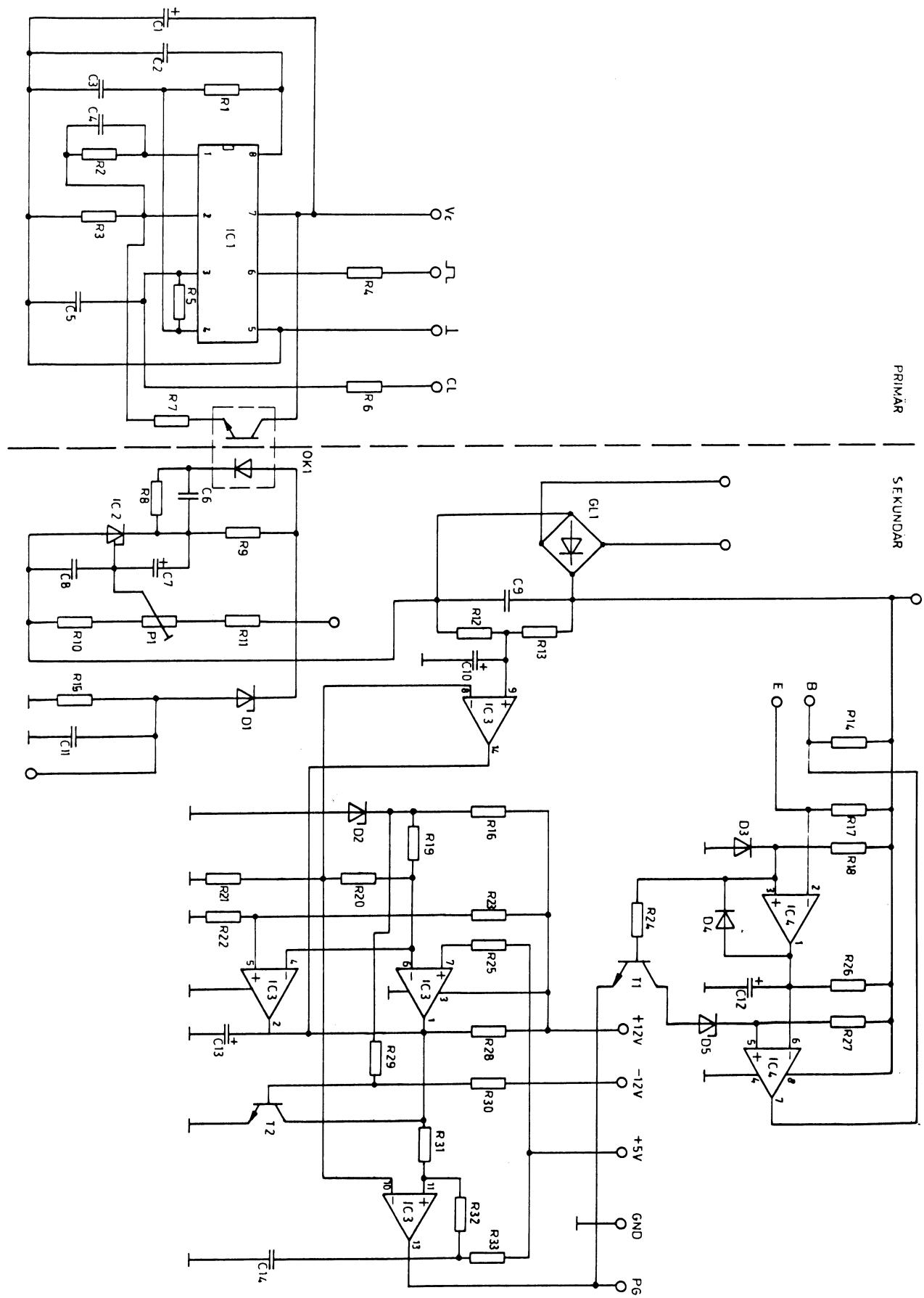
Power supply SCD-SNT 90/B03

Mainboard



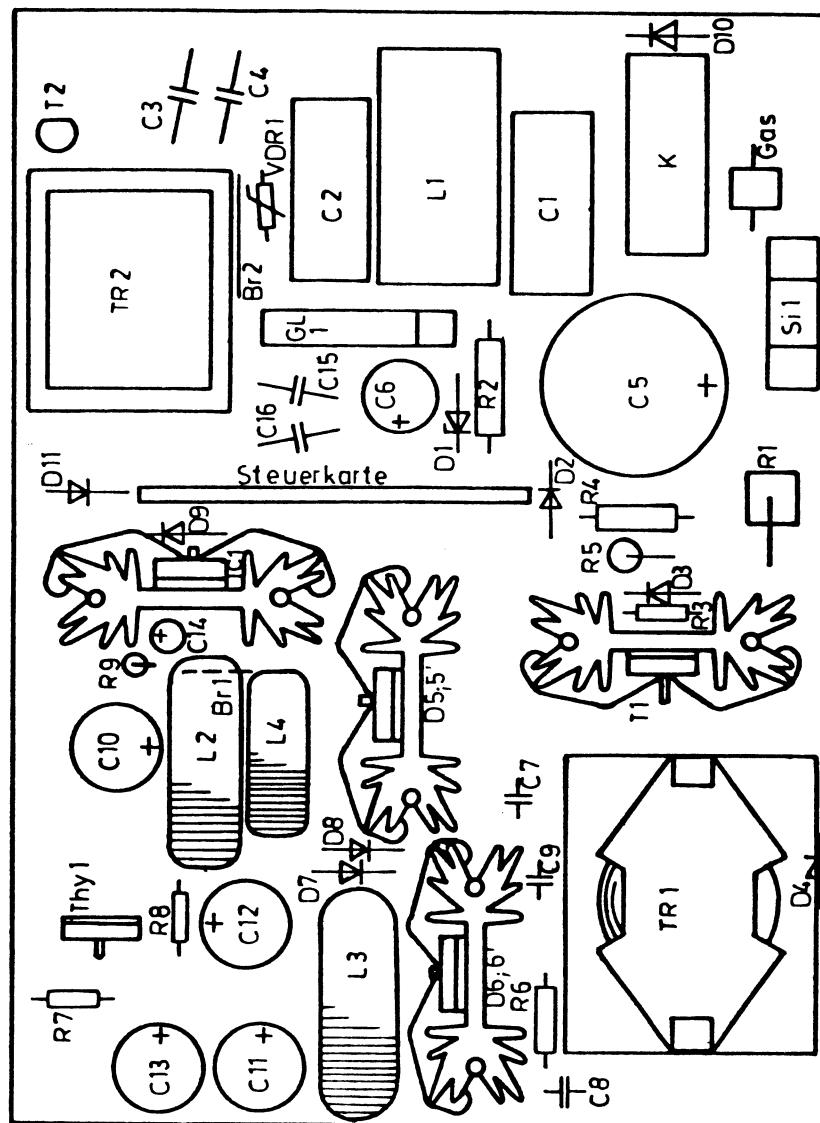
Schematic diagram

Power supply SCD–SNT 90/E02 Controlboard

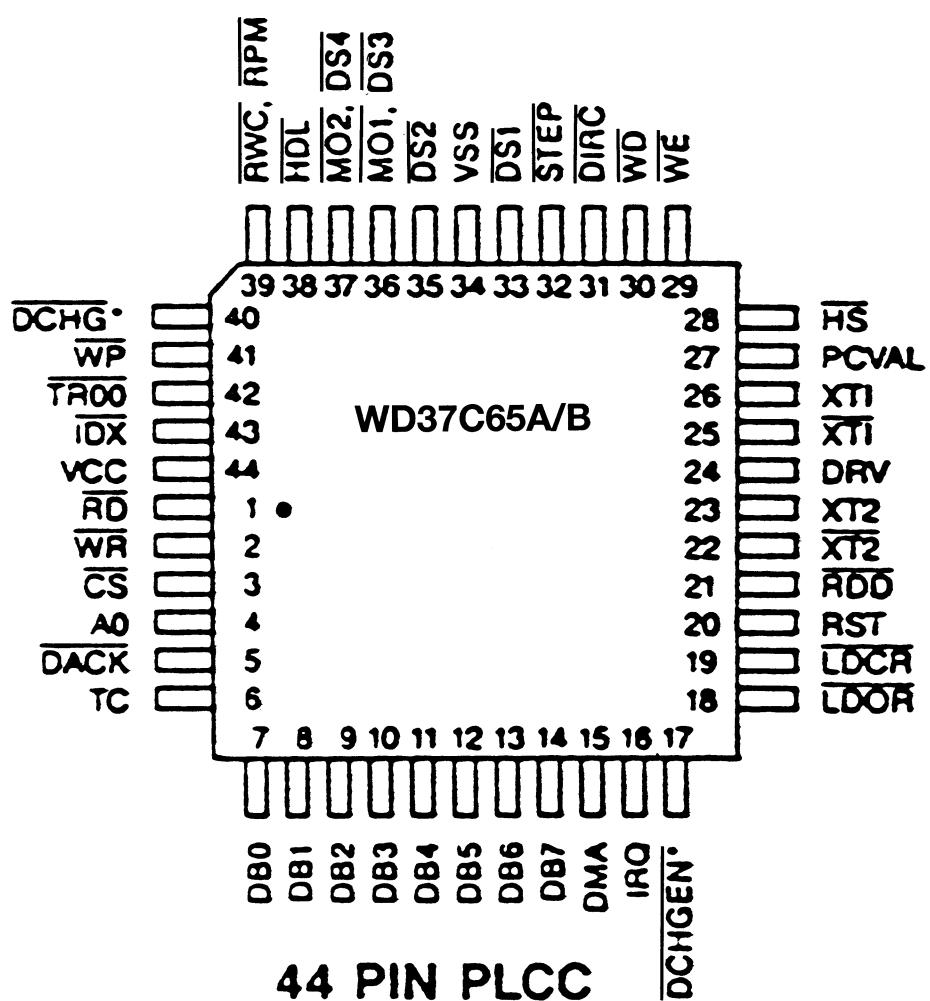
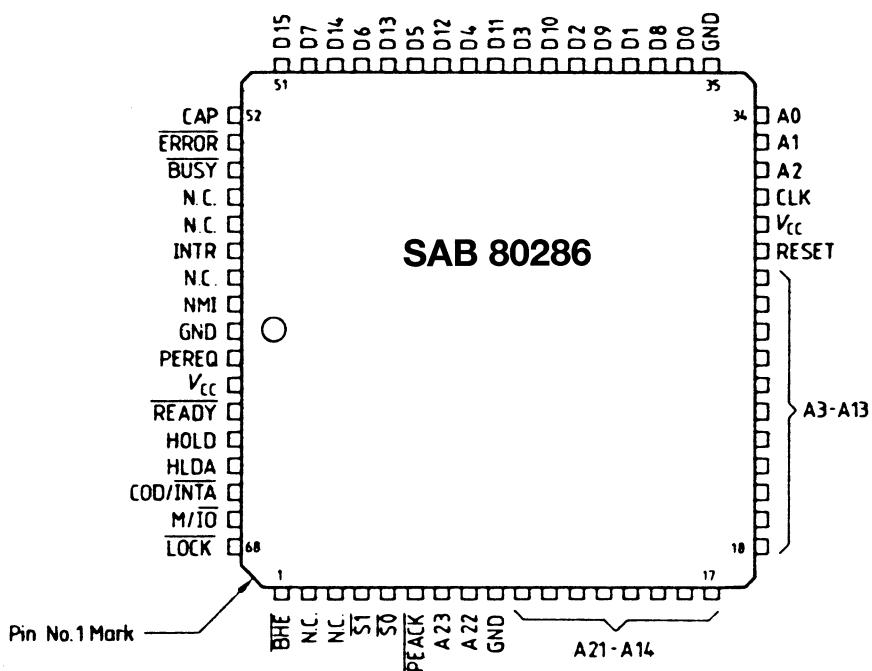


Power supply SCD-SNT 90/E02

Component side

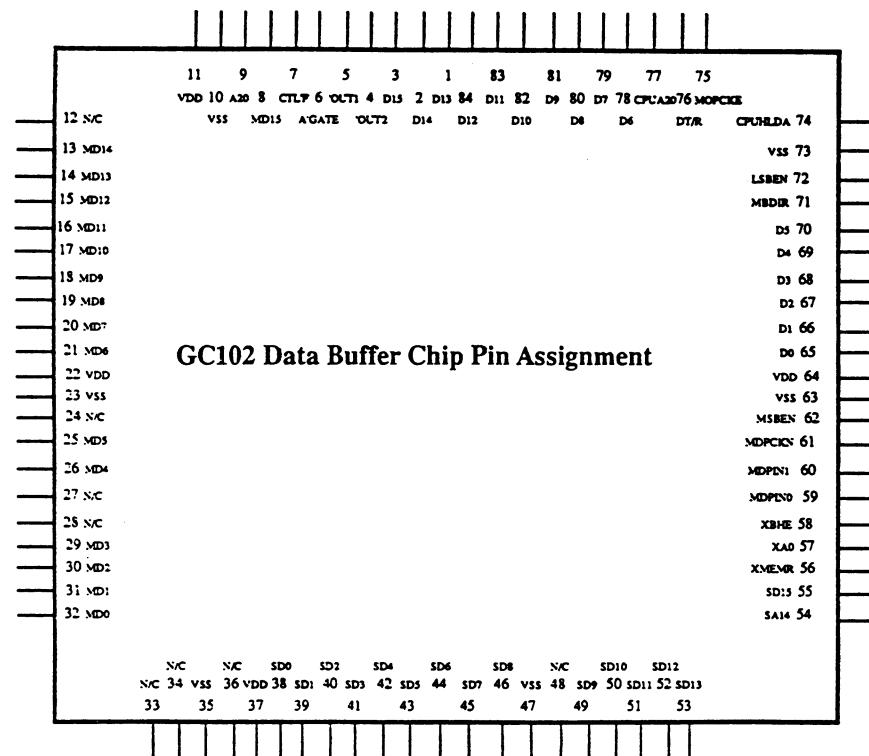
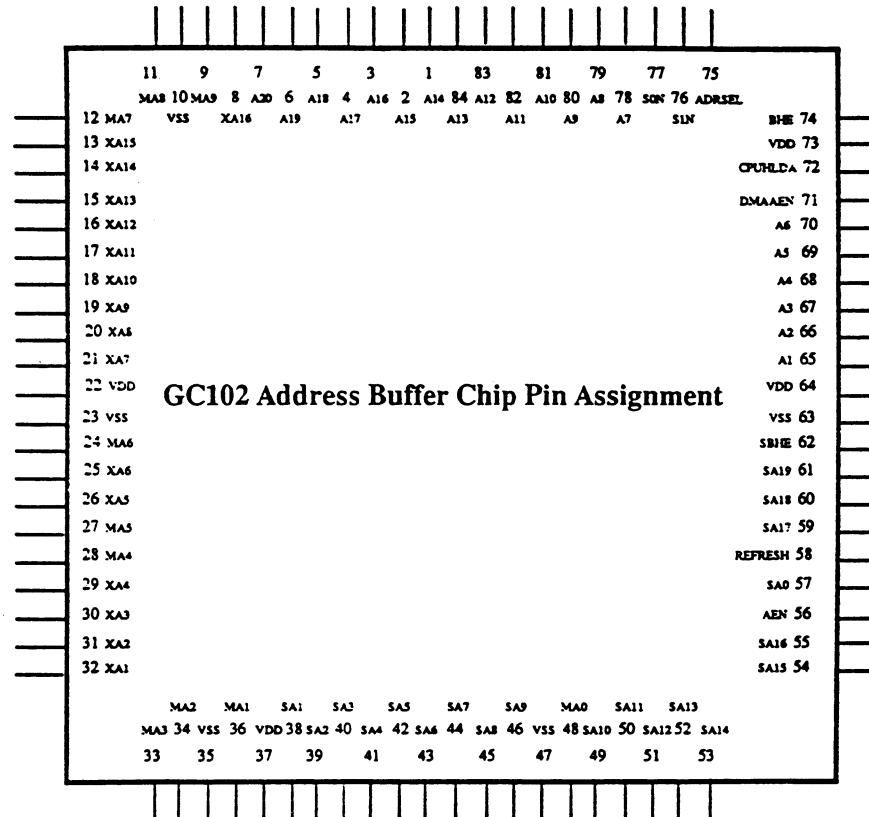


Pin assignment



44 PIN PLCC

Pin assignment



Pin assignment

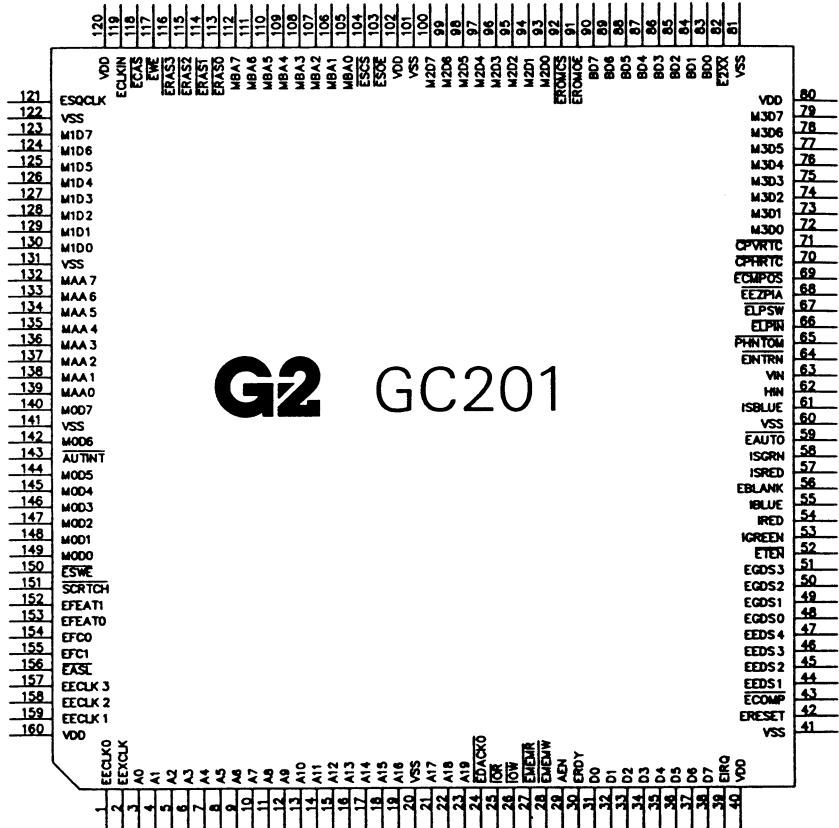
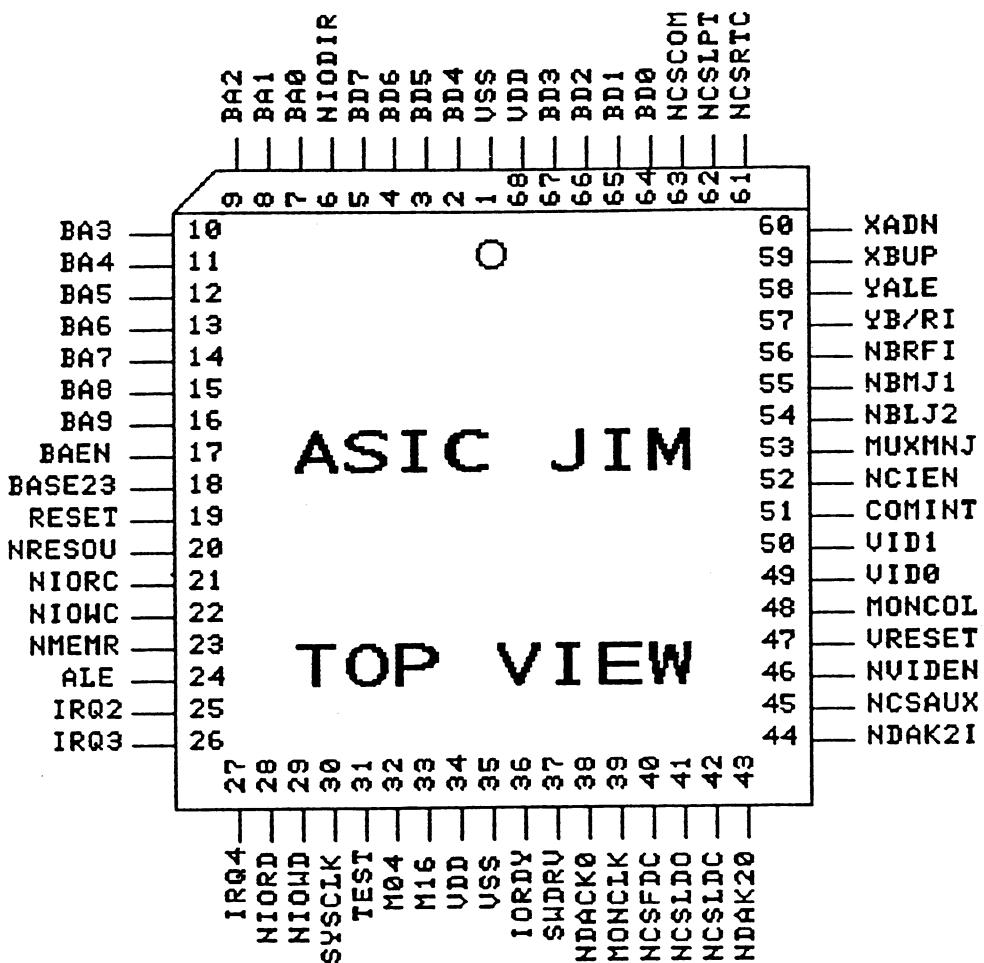


Figure 2 Pin Assignment



Pin assignment

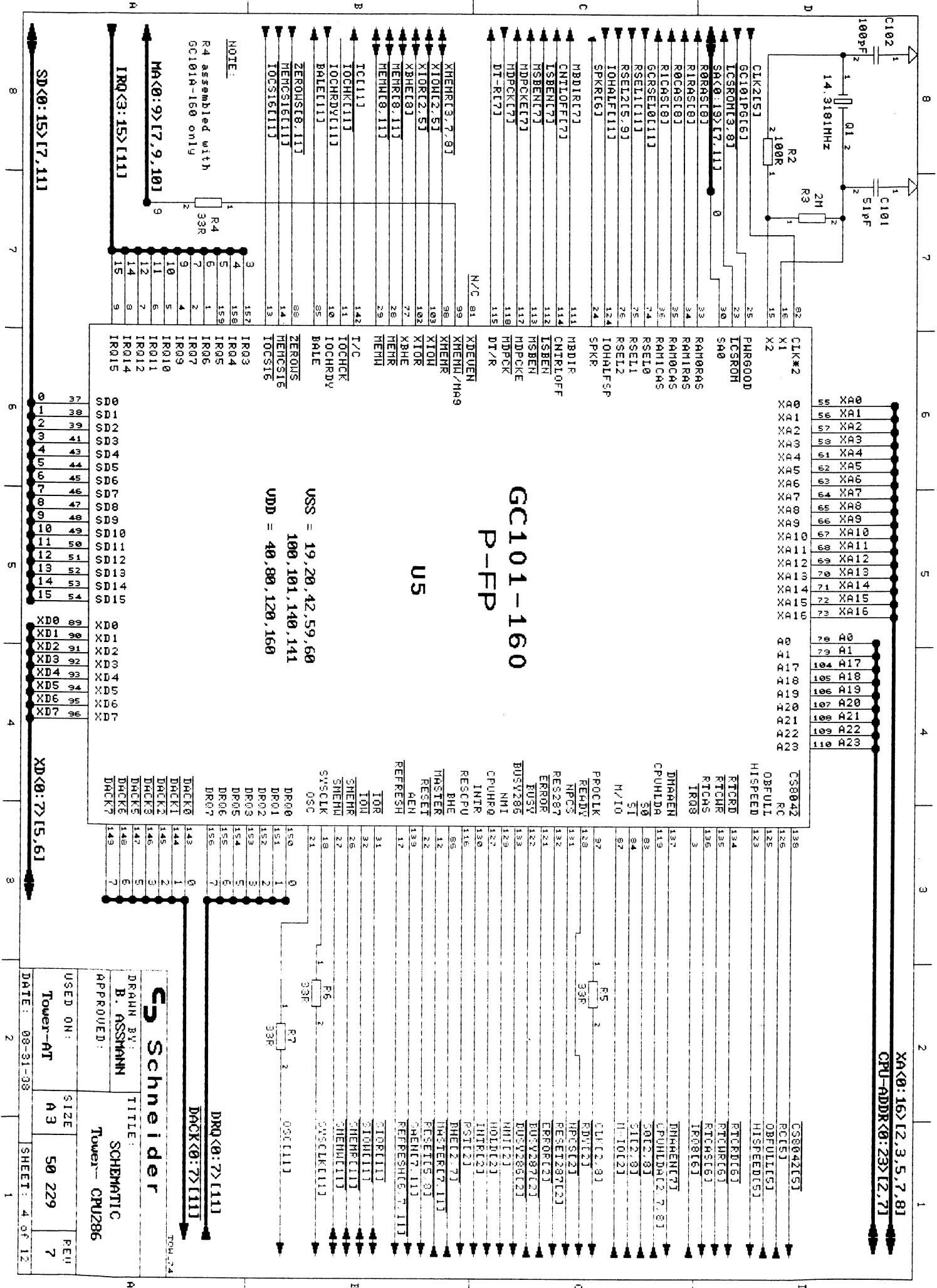
/ERROR	121	1	VDD	80	VDD
/BUSY	122	2	CPUHLDA	79	A1
HISPEED	123	3	/MDPCKN	78	A0
IOHALFSP	124	4	MDFCKE	77	XBHE
OPTBUFUL	125	5	RESETCPU	76	RSEL2
RC	126	6	DT/R	75	RSEL1
CPUHRQ	127	7	CNTLOFF	74	RSELO
/READY	128	8	/MSBEN	73	XA16
NMI	129	9	/LSBEN	72	XA15
INTR	130	10	MBDIR	71	XA14
/NPCS	131	11	A23	70	XA13
RESET287	132	12	109 A22	69	XA12
/BUSY286	133	13	108 A21	68	XA11
/RTCRD	134	14	107 A20	67	XA10
/RTCWR	135	15	106 A19	66	XA9
RTCAS	136	16	105 A18	65	XA8
/DMAAEN	137	17	104 A17	64	XA7
/CS8042	138	18	103 /X1OW	63	XA6
AEN	139	19	102 /X1OR	62	XA5
VSS	140	20	101 VSS	61	XA4
VSS	141	21	100 VSS	60	VSS
T/C	142	22	99 /XMEMW	59	VSS
/DACK0	143	18	98 /XMEMR	58	XA3
/DACK1	144	19	97 PROCCLK	57	XA2
/DACK2	145	20	96 XD7	56	XA1
/DACK3	146	21	95 XD6	55	XAO
/DACK5	147	22	94 XD5	54	SD15
/DACK6	148	23	93 XD4	53	SD14
/DACK7	149	24	92 XD3	52	SD13
DRQ0	150	25	91 XD2	51	SD12
DRQ1	151	26	90 XD1	50	SD11
DRQ2	152	27	89 XDO	49	SD10
DRQ3	153	28	88 OWS	48	SD9
DRQ5	154	29	87 M/TO	47	SD8
DRQ6	155	30	86 BHE	46	SD7
DRQ7	156	31	85 BAIE	45	SD6
IRQ3	157	32	84 /S1	44	SD5
IRQ4	158	33	83 /S0	43	SD4
IRQ5	159	34	82 CLK*2	42	VSS
VDD	160	35	81 /XDEVEN	41	SD3

G2

GC101

Appendix A:

Different schematics CPU Rev. 8 – Rev. 7 (Layout Rev. 3)



NOTE:
For use with U8=MC146818, omit R13 and assemble
Q3, R14, R16-R18, D4, T1, T2, C105, and C302.

D

D2

D3

D4

T1

T2

C105

and assemble R13.

U8=DS1287, omit Q3, R14, R16-R18,

D2, D3, D4, T1, T2, C105, and C302

and assemble R13.

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D2

D3

C105

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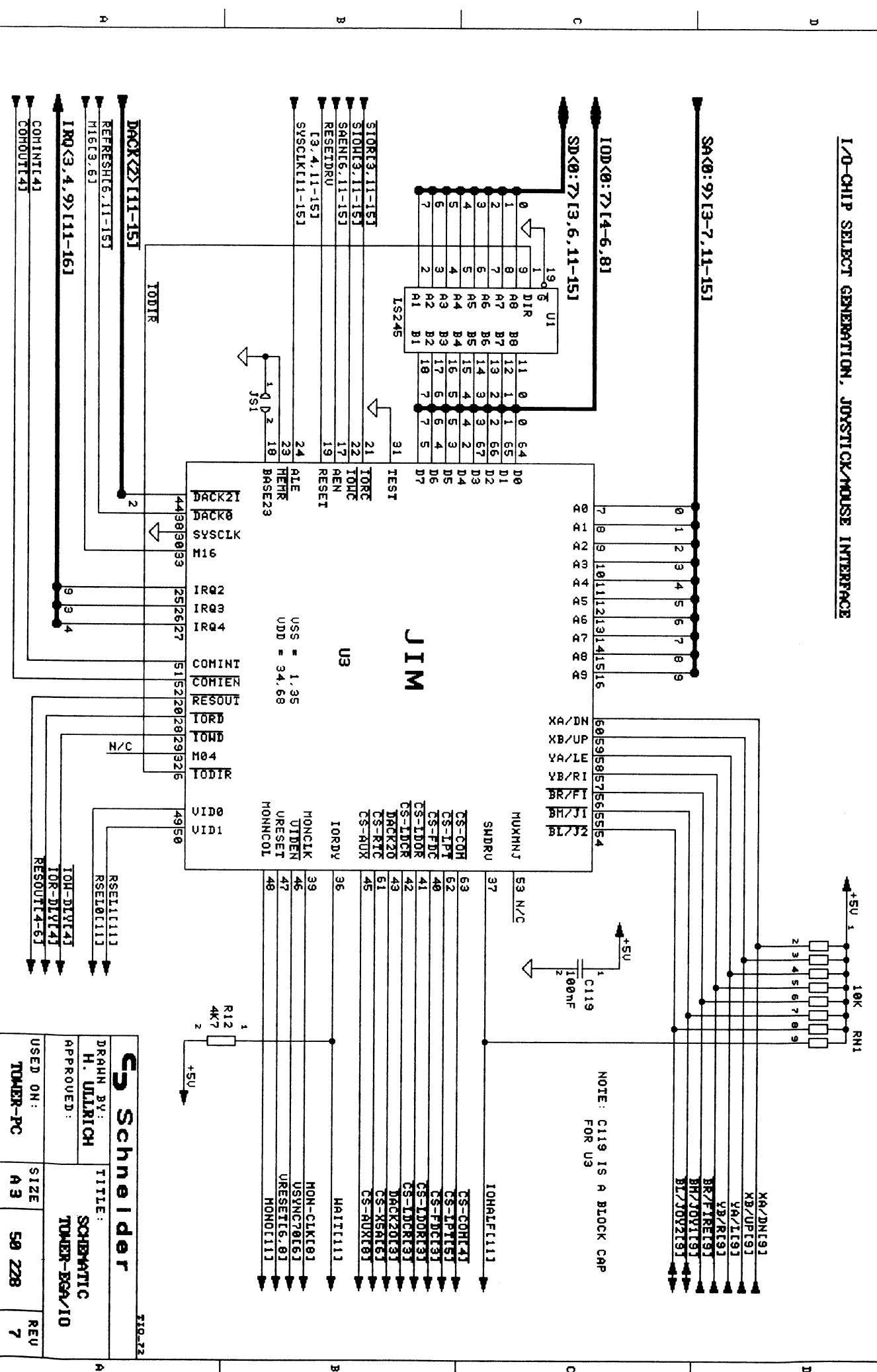
Appendix B:

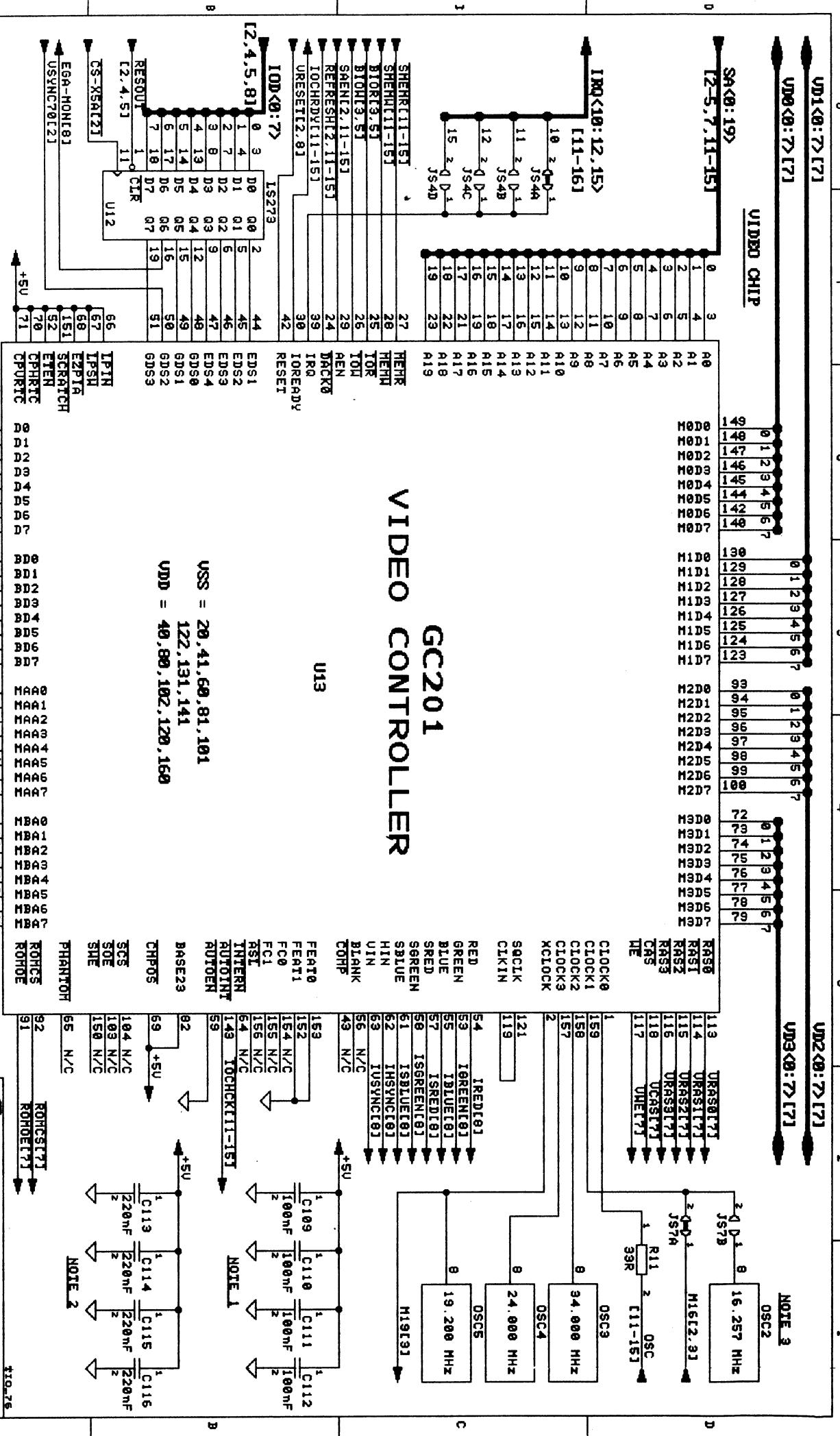
Different schematics EGA I/O Rev. 8 – Rev. 7 (Layout Rev. 2 without Reworks)

I/O-CHIP SELECT GENERATION, JOYSTICK/MOUSE INTERFACE

B

D





Schnieder

SP<8:7>[2,3,11-15]

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THE JOURNAL OF CLIMATE

32 OSC2 NOT ASSEMBLED

88

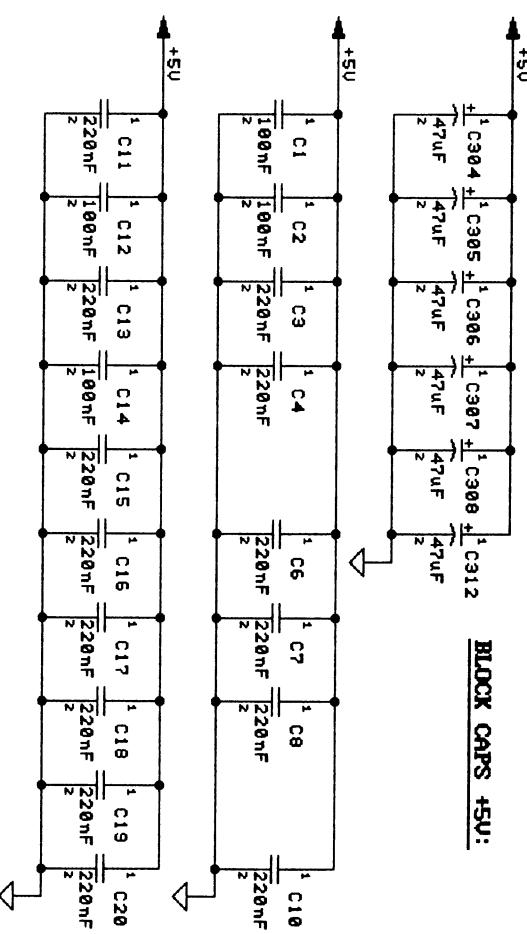
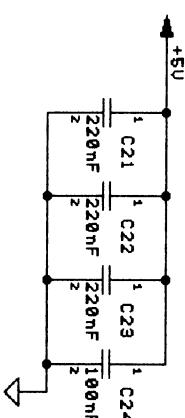
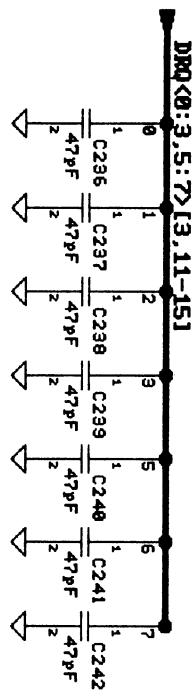
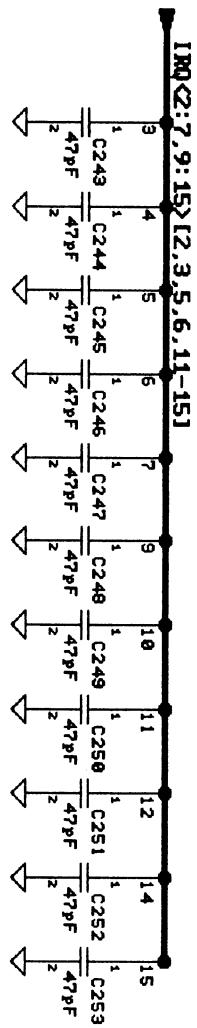
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SPARE GATES

MC1488

BLOCK CAPS +5V

C Schneider			
DRAWN BY: H. ULLRICH	TITLE: SCHEMATIC		
APPROVED:	TOWER-EKA/10		
USED ON: TOWER-PC	SIZE A3	SHEET 50 228	REV 7
DATE: 08-11-88	SHEET: 16 OF 16		

Appendix C:

Schematics CPU Rev. 9 (Layout Rev. 5)

8

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8	7	6	5	4	3	2	1
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LTR	DESCRIPTION	DATE	APPROVED
1	ADVANCED ENGINEERING RELEASE	05-13-88	SCHLAGE
2		05-18-88	ASSMANN
3		06-01-88	SCHLAGE
4	First Layout	06-22-88	SCHLAGE
5	Layout REU 2	08-06-88	ASSMANN
6	Layout REU 2 CORRECTIONS	08-22-88	ASSMANN
7	PCB REU 2A FIX OF BUS 'MASTER'	08-31-88	ASSMANN
8	PCB REU 4. LAYOUT: ADDITIONAL RESET LOGIC ELIMINATED	11-02-88	ULLRICH
9	PCB REU 5. LAYOUT: WITH GC 101 D	11-07-88	ASSMANN

DRAWING FILES: CONTENTS:

TOM_91.DWG THIS SHEET
 TOM_92.DWG CPU SECTION
 TOM_93.DWG BIOS EPROMS
 TOM_94.DWG GC 101 D
 TOM_95.DWG KEYBOARD / CLOCKS
 TOM_96.DWG REAL TIME CLOCK
 TOM_97.DWG ADDRESS / DATA BUFFERS
 TOM_98.DWG TIMING FOR MEMORY
 TOM_99.DWG MEMORY ON SIL- MODULE
 TOM_910.DWG MEMORY ON BOARD
 TOM_911.DWG CONNECTORS
 TOM_912.DWG BLOCK CAPS

C Schneider

TOM-91

DRAWN BY:
B. ASSMANN

TITLE:

SCHEMATICS

TOMER CRU286

APPROVED:

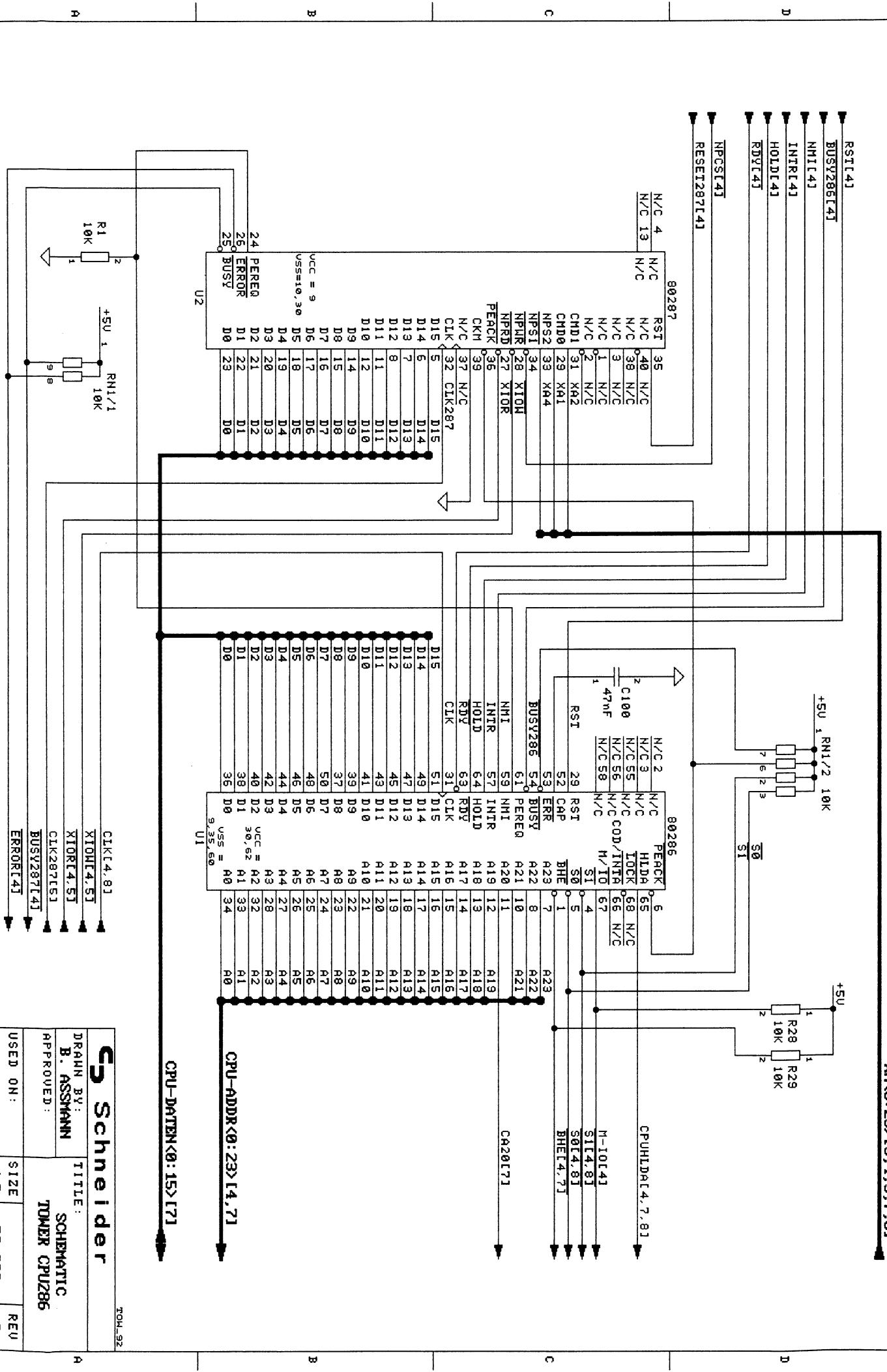
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TOMER-AT	A3	50 229	9

DATE: 11-07-88

SHEET: 1 of 12

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XA<0:15>[2,4,5,7,8]

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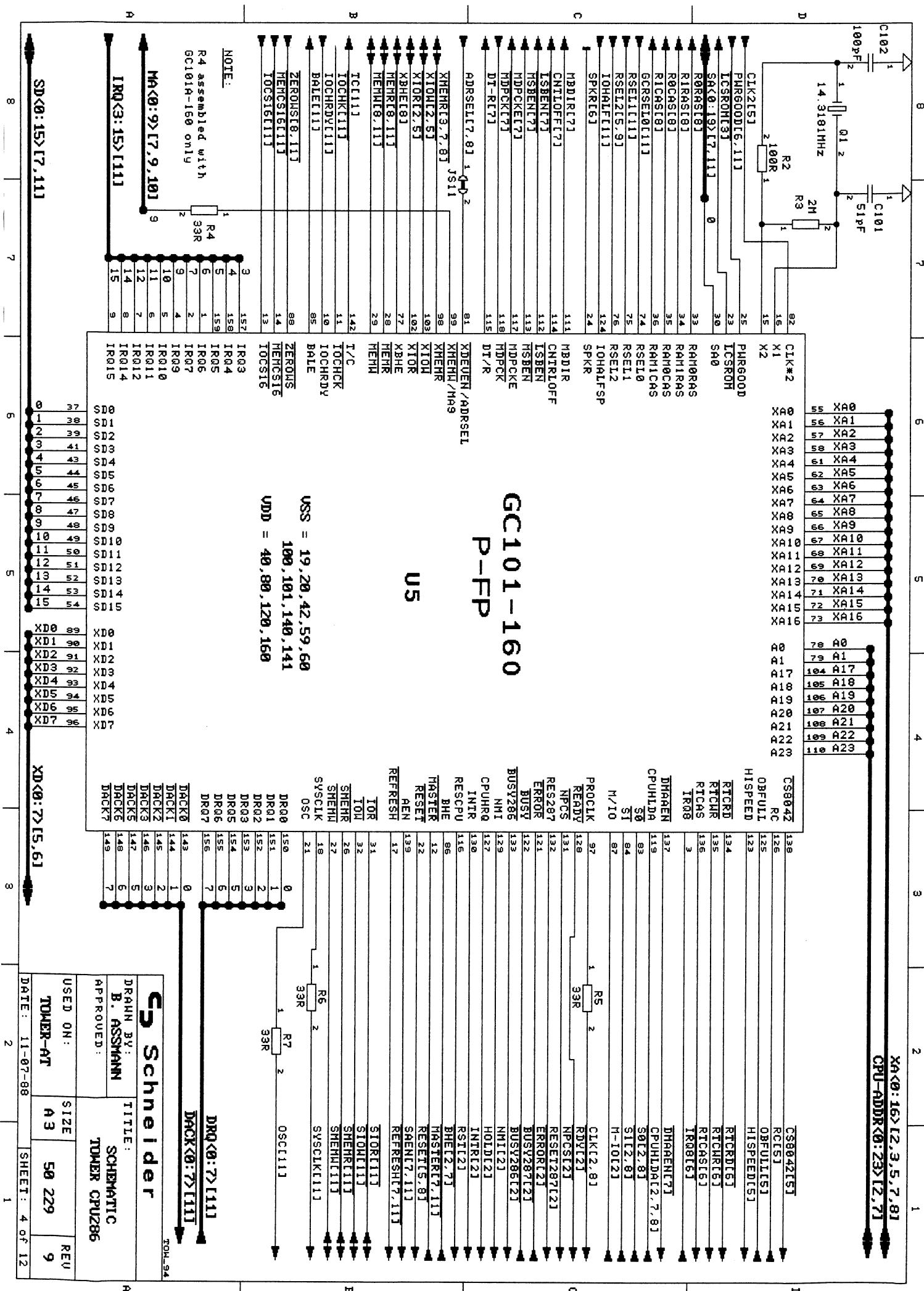
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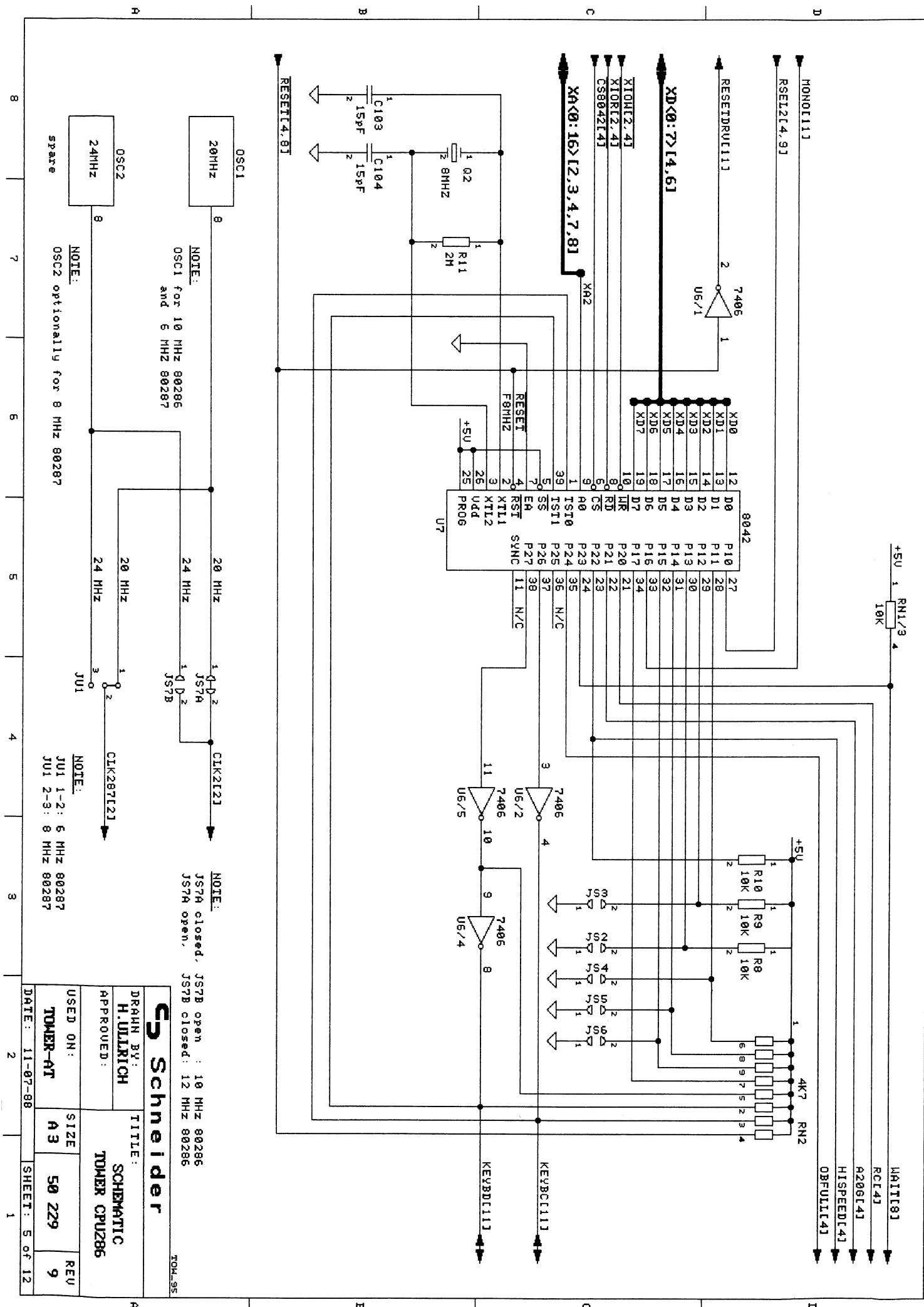
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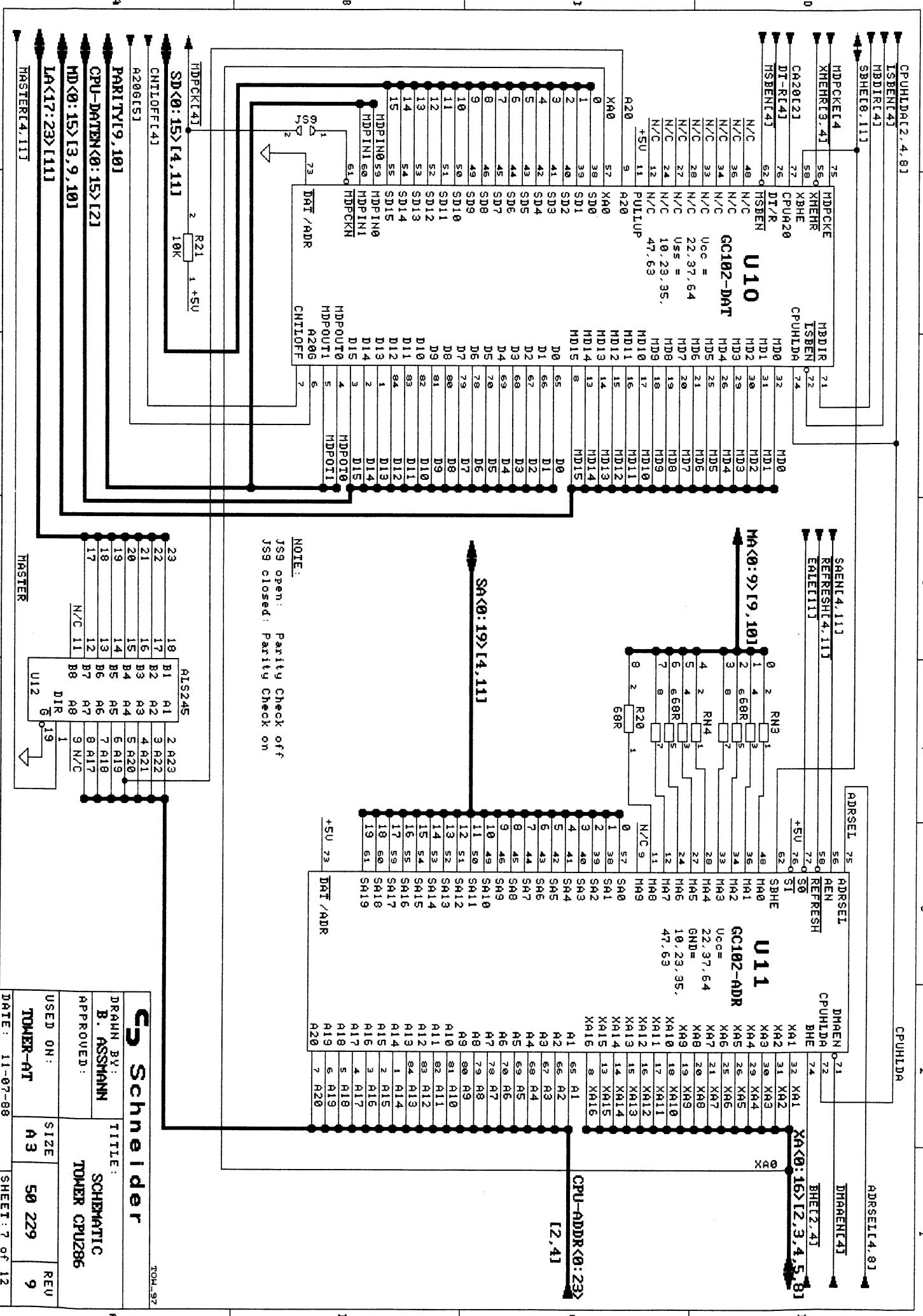
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A244

A245







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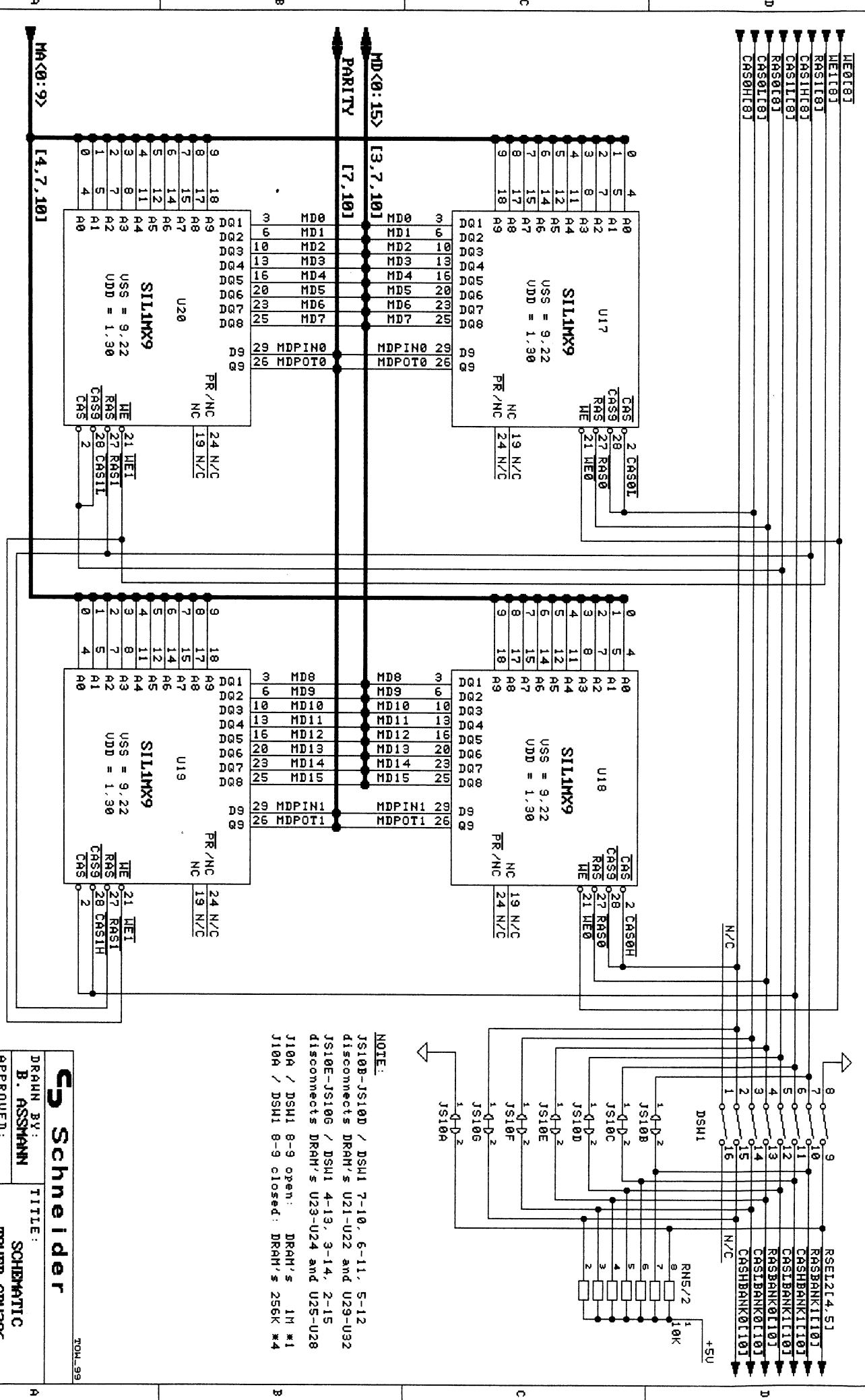
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**Schneider**

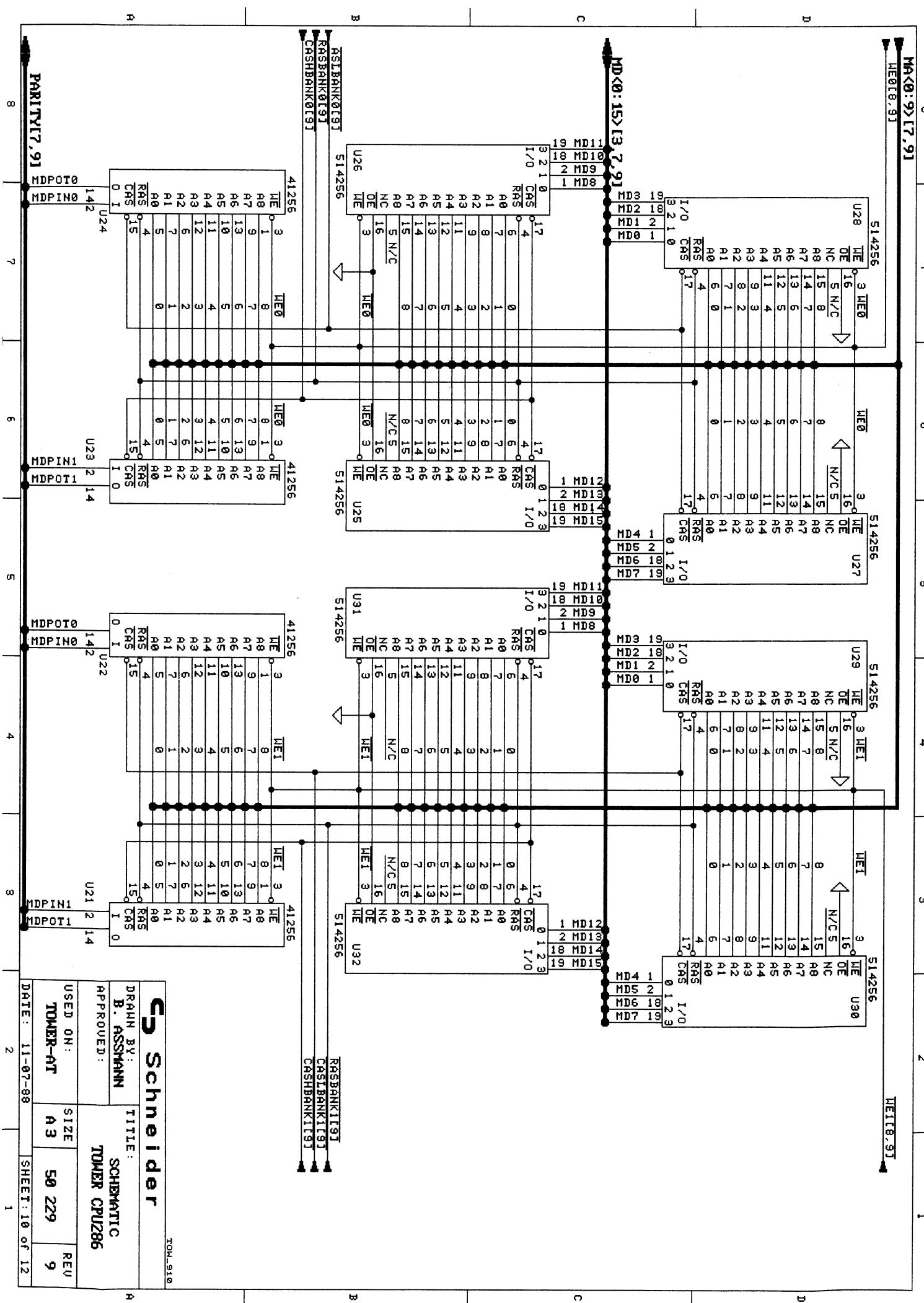
DRIVEN BY:
B. ASSMANN
APPROVED:
TOWER-AT

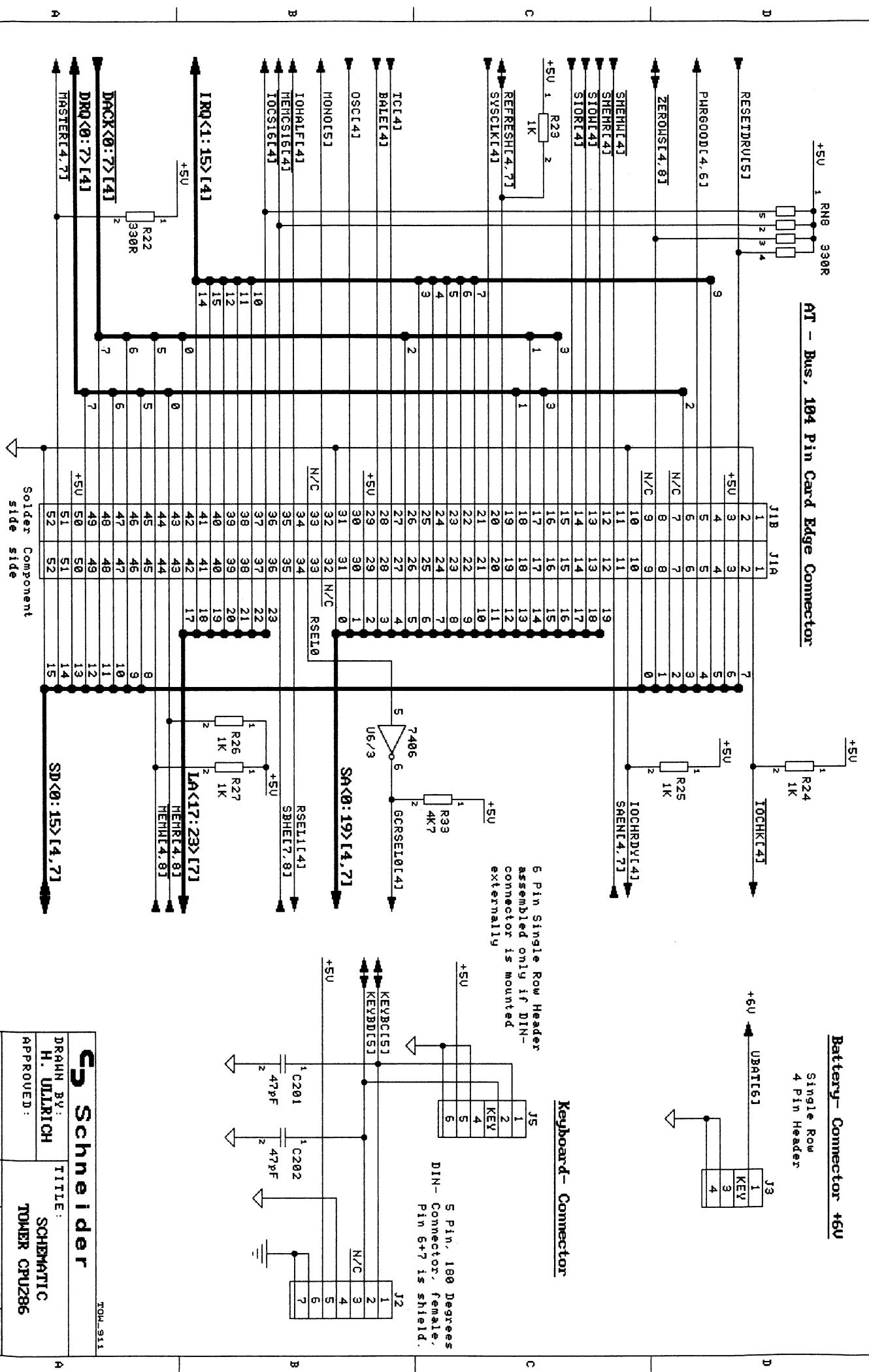
TITLE:
SCHEMATIC

TOWER CPU286

USED ON:	SIZE	REV
TOWER-AT	A 3	50 229
		9

DATE: 11-07-88 SHEET: 9 of 12



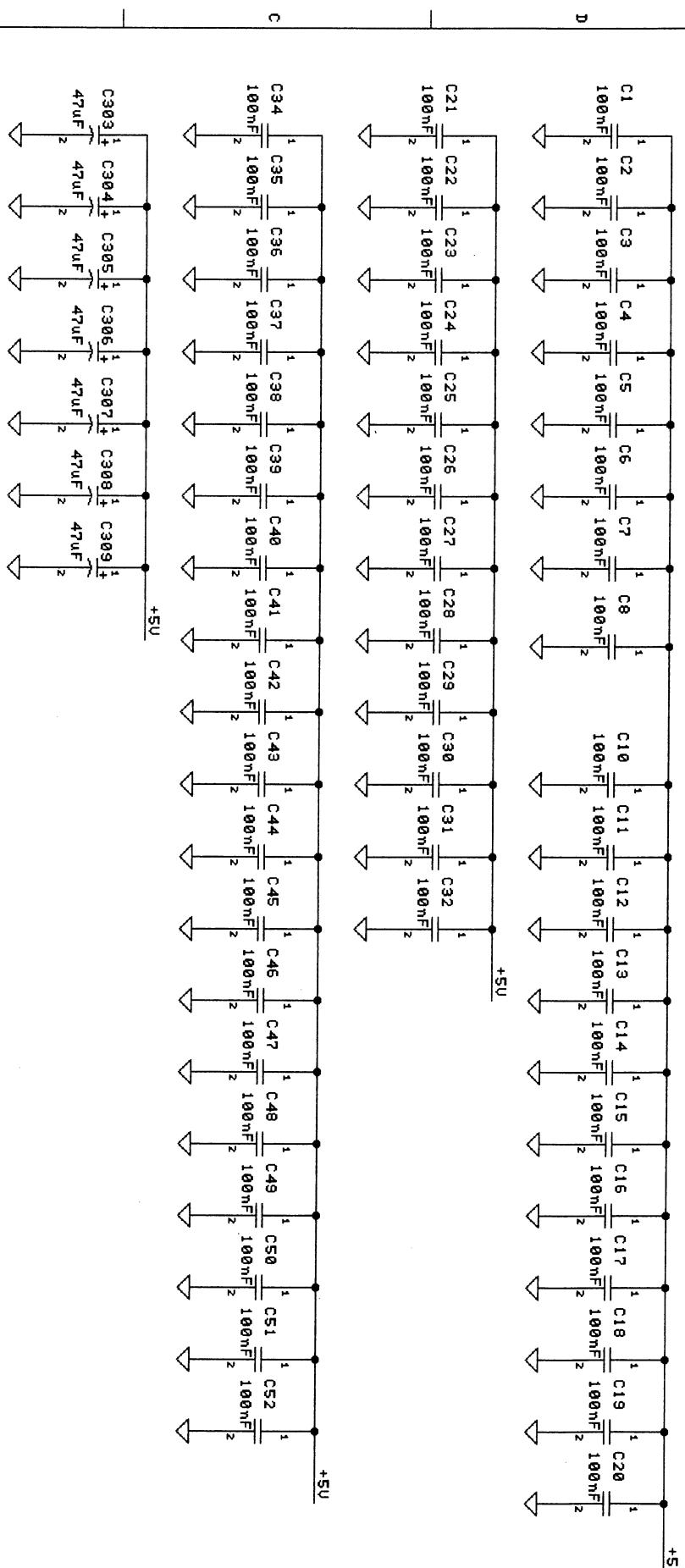


Schnieder

G Schneider

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Schneider

TOM_912

DRAWN BY:
B. ASSMANN

TITLE:
SCHEMATIC

TUMER-CPU286

APPROVED:

USED ON:

TUMER-CPU286

DATE: 11-07-88

SIZE
A3

50 229

REV
9

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Bitte bei Ersatzteilbestellung die genaue Bezeichnung und Ident-Nr. (siehe Typenschild) des Gerätes sowie Bestell-Nummer und Positions-Nummer des Ersatzteils angeben.

For ordering of spare parts please state exact description and ident.-no. of unit (see silver rating label on the backside of unit) as well as part no. and position no. of required spare parts.

Benutzen Sie:

Telex: 531516

oder



* 317298 #

oder

Telefax: 08245/51326